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News

# XML Articles and Papers. January-March 2000.

## XML General Articles and Papers: Surveys, Overviews, Presentations, Introductions, Announcements

References to general and technical publications on XML/XSL/XLL are also available in several other collections:

- XML Article Archive: [Current XML Articles] [January-March 2000] [July-December 1999] [January-June 1999] [1998] [1996 - 1997]
- Articles Introducing XML
- Articles/Press Releases - XML Industry News
- Comprehensive SGML/XML Bibliographic Reference List

The following list of articles and papers on XML represents a mixed collection of references: articles in professional journals, slide sets from presentations, press releases, articles in trade magazines, Usenet News postings, etc. Some are from experts and some are not; some are refereed and others are not; some are semi-technical and others are popular; some contain errors and others don't. Discretion is strongly advised. The articles are listed approximately in the reverse chronological order of their appearance. Publications covering specific XML applications may be referenced in the dedicated sections rather than in the following listing.

## March 2000

- [March 31, 2000] "DSML is the glue for future directories. Language addresses the shortcomings of other protocols." By Rawn Shah. In *SunWorld Online* (March 2000). ['To support a truly enterprise-scale directory service, products from major vendors such as

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Microsoft, Novell, Sun, and others must speak the same language. The Directory Services Markup Language (DSML) might just be the key. This month Rawn Shah reviews DSML.'] "Although there have been numerous directory services products over the years, Microsoft's recent release of Active Directory, which is bundled with Windows 2000, promises to make itself mandatory in medium- to large-scale Windows-centric networks. It may not be the most versatile system in the world, but it can improve the management of hundreds or thousands of Windows desktops and servers. Although Active Directory implements version 3 of the Lightweight Directory Access Protocol (LDAP), it also extends it and adds some Windows specific features. Microsoft isn't alone in adding to LDAPv3, which does have its limitations. For example, Novell's NetWare Directory Services (NDS) also enhances the LDAPv3 protocol to add their own features. One important missing feature is object-level access control. Each entry object in the directory should have its own access control list that indicates which users are allowed access to the data contents of the entry and which aren't. Both NDS and Active Directory have this, albeit in different forms. Such enhancements alter the way directory entries may be accessed from an application, thus making, for example, a NetWare-based application incompatible with some of the data stored in Active Directory. . . . Like XML, DSML has platform-independent syntax that can be implemented on practically any platform available today. It separates the context-specific semantics of the document contents from the platform-specific semantics, which makes an entry in one directory understood as an entry in all directories. Some entries may have additional attributes that others don't, so DSML provides a way to translate an entry from one directory format to another. Each directory accepts the attributes it can store and creates default values or queries for additional information on missing entries. DSML is language that describes the structure of directories (schema), and the contents of directory entries. In other words, it's a structured form that describes another structured form. Because both directories and XML commonly use terms such as attributes, schema, objects, etc., it's important to distinguish the difference when talking about DSML. A directory schema thus refers to the structure of the data elements contained within the directory, as opposed to the DSML schema that refers to the ruleset of how to translate between directories..." See "Directory Services Markup Language (DSML)."

- [March 31, 2000] "Increase Web-Page Performance with Server-Side XSL." By Paul Enfield. MSDN Online Magazine. April, 2000. ['This MSDN Magazine article shows how to boost performance and reduce database load by using server-side XSL to generate data-driven Web pages in advance of page requests. Dynamic data-driven pages have become the basis of many cutting-edge Web sites. Early render systems can provide better performance and maintainability for data-driven Web sites by generating frequently accessed pages that contain less-volatile information ahead of time. We'll show you an example of a server-side solution that uses Extensible Stylesheet Language (XSL) to merge data and layout information into HTML that is compatible with just about any modern Web browser. Using these techniques to render Web pages early can reduce the load on your database back end and increase performance for your users.'] "Web content has evolved from primarily static information to data-driven pages and now to dynamic data-

driven content. However, a common belief that has taken hold among Web developers is that if the content is data-driven, it must be rendered dynamically. If you are using Microsoft tools to develop Web content, this probably leads you to believe that your site must rely on ASP. But there is another way to build a data-driven site. Early render systems provide better performance, maintainability, and cross-browser compatibility by allowing you to render often-accessed data-driven pages in advance. What is an Early Render System? An early render system is a process of building Web content incrementally prior to demand. This means that a given dynamic page might not be rendered completely on the fly as it is in ASP. Instead, parts of the page can be built prior to the first page request. The build might include merging data with static content or conditionally building ASP script sections based on some criteria. . . XSL as a Rendering Solution The Extensible Stylesheet Language (XSL) makes a great solution for merging the data with the layout to provide content. Through the nature of XML, XSL allows you to separate the data from the layout. As long as you can provide the data in XML format, you can use XSL to produce content. Another benefit of XSL is that it allows you to produce cross-browser-compatible HTML. Because building the pages takes place long before they are delivered, the product of the build process can be cross-browser-compatible HTML. Additionally, because the result of an XML/XSL merge is text, you can use XSL to build both ASP pages and the build script itself. In this article, XSL is used as a server-side solution. This means that the merging or transformation of the XML/XSL to HTML or ASP occurs on the server. By contrast, you could also build a client-side solution based on the XML Document Object Model (DOM) in Microsoft Internet Explorer 5.0. Using this method, Web site content would be provided separately through XML data, using XSL for layout. For the sake of cross-browser support, however, I will concentrate on the server-side solution."

- [March 31, 2000] "Microsoft to give a sneak peek at its XML server. Early BizTalk Server 2000 code won't include key process development technology." By John Fontana. In *Network World* Volume 17, Number 13 (March 27, 2000), page 10. "Microsoft will soon publicly release the first test code for its XML-based e-commerce software, but the product will be missing technology that is key to its evolution. BizTalk Server 2000 is a gateway that uses XML to support the exchange of business documents, such as purchase orders, between applications using different data formats. Microsoft intends for the server to become a cornerstone of its business-to-business e-commerce platform along with the just-released Windows 2000. BizTalk will make its debut in early April when Microsoft releases what it calls technical review code. But the software will be missing technology that will allow users to develop executable code that runs on the server. BizTalk in its current form takes in data and transforms it from its native format to XML and vice versa, and routes the documents between systems. This summer Microsoft will launch its first official public beta of BizTalk that will include a business process automation modeling and execution engine. The new engine is key because it lets developers build processes that support business-to-business e-commerce, execute those processes on the server and combine documents into a single process... The new engine will help BizTalk move forward and may allow Microsoft to move XML translation features from BizTalk into Win 2000...Microsoft is

building XML into everything it does from the Exchange messaging platform to the SQL Server database. BizTalk's transformation and routing technologies could be combined with Win 2000, much the same way load balancing was added to the server, according to observers."

- [March 31, 2000] "Exchanging Data Over the Internet Using XML. [Cutting Edge.]" By Dino Esposito. MSDN Online Magazine. April, 2000. "In the last two installments of this column, I've discussed various techniques and technologies that allow you to exchange data over the Web in a traditional, client/server-oriented fashion. I've discussed the principles and the tools you need to work with Remote Scripting (RS) and the whole set of objects that Remote Data Services (RDS) part of Microsoft Data Access Components (MDAC) 2.x makes available. In this column, I'll introduce a fourth possibility that is based on COM and specializes in handling XML data. This component, called XMLHttpRequest, is part of the built-in XML support provided by Microsoft Internet Explorer 5.0. Before going any further in describing the features and the capabilities of XMLHttpRequest, let me recap a few key points about using XML as a sort of universal glue that lets heterogeneous systems interoperate and collaborate. In doing so, I'll touch on a couple of topics that will have a significant impact on the Web applications of the near future -- BizTalk and Web services -- which address the two more prominent perspectives in Windows DNA 2000: business and data integration. . . The major strength of XML is also, today, its main weakness. XML is too generic to be used without fixing at the outset the exact syntax of a document and how each piece of exchanged data can be retrieved and located. Such standardization is simpler to achieve within a single corporate app, even if it spans various heterogeneous hardware and software platforms. Getting the same result in a wider context requires a tremendous effort to arrive at some standard definitions. This process may take years to complete. Unfortunately, when it comes to integrating systems from different organizations, especially in an open way, XML shows some limitations. XML is about data description, but it's only useful when people agree on how data should be described. An invoice, for example, is logically the same type of document for any process that manipulates it. But different subjects may render it through different binary formats. Despite the physical storage format, the document needs to be transmitted and received in a commonly recognized format available on all platforms. Of course, XML can be used as this format. BizTalk is a worldwide initiative that aims to create a database of XML-based document formats. More than 100 companies have already adhered to BizTalk, which offers more than 30 different XML schemas to which interested companies can refer. A BizTalk-based document is an XML file that deploys the tags from a certain vocabulary and follows the rules that the organization has defined for that type of document. A BizTalk-based document is actually exchanged by two BizTalk servers across a network. . ."

- [March 31, 2000] "XTech 2000 Offers View into XML Crystal Ball." By Stephen Swoyer. In ent Magazine Volume 5, Number 5 (March 22, 2000), page 24. "Last year was a breakout year for XML. And with major doings on the horizon, it could become an overwhelming task to keep track of XML-related matters in 2000 and beyond. XML's rise is evidenced by the

popularity of a recent conference devoted solely to the standard. XTech 2000, an XML software developer conference sponsored by the Graphic Communications Association (GCA, www.gca.org) and cosponsored by the Organization for the Advancement of Structured Information Standards (OASIS, www.oasis-open.org). Industry leaders such as Microsoft Corp. (www.microsoft.com), Sun Microsystems Inc. (www.sun.com) and IBM Corp. (www.ibm.com) lent support to the conference. Hot topics at this year's XTech 2000 conference included the Trading Partner Agreement Mark-Up Language (tpaML) that IBM recently submitted to OASIS, in addition to a number of emerging technologies and trends that hadn't been formally introduced by either OASIS or the World Wide Web Consortium (WC3, www.w3.org) prior to the conference. One area is the phenomenon of XML linking, which has the potential to expand HTML's limited support for resource linking. Eve Maler, staff engineer at Sun and co-editor of a proposed XML linking specification, presented a tutorial track on XML linking, which is composed of three related components: XLink, XPointer, and XML Base. Maler says the XLink component, in particular, will create additional options for developers by allowing them to link from a greater number of elements. As a matter of fact, XLink can turn any element into a link..."

- [March 31, 2000] "Industry Players Use XSL to Make Data Ubiquitous." By Michael Lattig and Stephanie Sanborn [with Ed Scannell]. In *InfoWorld* Volume 22, Issue 13 (March 24, 2000), page 8. "As the industry coos over XML's potential as the data interchange mechanism for e-commerce, XSL (Extensible Stylesheet Language), may be overlooked, even though it could prove a valuable asset in paring down development costs and targeting myriad devices. For that reason, many companies are beginning to complement their XML support with XSL support in their core products. One such adopter is the Sun-Netscape Alliance, whose application services CTO, Larry Cable, said the company will provide a full-featured set of XML and XSL technologies in its iPlanet Application Server 6.0, now in beta testing. That support, Cable said, will allow iPlanet to take advantage of XSL's main benefits, such as taking information from a single source, transforming it to another XML-based language, such as HDML (Handheld Devices Markup Language), and delivering that content to a broad variety of devices, a capability that could greatly reduce development costs. 'XSL is a very expressive programming language, so you could basically perform any transformation from one XML [variant] to another,' Cable said. Industry titans IBM and Microsoft are also looking at XSL as an important technology for presenting content on a variety of devices. IBM has made a commitment to the technology across a number of its key middleware products, and views the technology as an important supplementary piece to its XML and transcoding initiatives."

- [March 31, 2000] "XML shifts power to users, but can they handle it?" By David Moschella. In *ComputerWorld* (March 27, 2000), page 37. "It has only been in the last year or so, with the sharply rising interest in XML, that the significance of this customer-driven revolution has become clear. If users want to exploit the power of common metatags, shared ontologies, communicating applications and a more databaselike Web, they will have to do most of the work themselves. IT vendors will certainly have a vested interest in helping, but

even today's market leaders will find it difficult to drive the necessary setting of standards. And standards are what the XML movement is all about. Although much has been written about today's confusing mix of industry-specific initiatives and overlapping associations and institutions, I'm much more intrigued by a larger question. For more than 30 years, IT professionals and their corporate bosses have told IT vendors that they want interoperability and standards. But now that the standards burden has shifted to IT users themselves, will they be up to the task? There are already many new companies trying to develop shared ontologies for specific markets and industries, and software giants such as SAP, Oracle and Microsoft will influence XML usage in a number of important ways. But the big changes will have to happen at the customer level. In fact, many IT user organizations will soon find themselves in some very vendorlike predicaments, juggling the desire for interoperability with their own competitive interests..."

- [March 31, 2000] "Sparkling Display of E-books." By Mark Walter. In *The Seybold Report on Internet Publishing* Volume 4, Number 7 (March 2000), pages 4-13. ['One of the top attractions on the expo floor was the inaugural e-book showcase, which featured dedicated devices, PC-based readers and Web-based services. We review the rise of the Open E-Book (OEB) standard, the status of PDF and the issues still unresolved in the e-book space. Among the vendors, alliances and acquisitions affected Glassbook, netLibrary, NuvoMedia and Softbook. New entrants included Ansyr, ibooks.com, and ebrary.com. The showcase of vendors proved an opportune time to present our third overview of this rapidly evolving market. OEB is coming on strong, but PDF has been strengthened by recent alliances. We cover the debate and check out the latest hand-held and PC-based e-book viewers and sites.'] "Today, the e-book pioneers of 1999 are already working on their second- and third-generation products. Some firms have already been acquired by larger companies; the behemoth Microsoft has entered the game, joined by a flock of young start-ups; the leading booksellers have begun peddling e-books to the public; and the scramble to test these new media is in high gear. . . More changes are in store later this year, with Microsoft due to release its first-generation e-book reader, Adobe planning to counter ClearType with CoolType; and the OEB and EBX working groups striving to consolidate vendors' interests in standards for packaging e-books and managing rights and permissions online. The groundswell building behind the Open E-Book (OEB) format was very palpable at the Boston event, much more so than six months ago when the initial OEB specification was released. Already, virtually every vendor in the e-book space can, or will soon be able to, accept OEB files as inputs to their proprietary reader formats. . . Though the data formats of the books themselves are settling down, the packaging of the books remains. The Open E-Book group, now receiving assistance from the National Institute of Standards and Technology, is close to finalizing a proposed standard for packaging e-book files into a single container object as a secure MIME object. The fly in the ointment is Microsoft, which has gone ahead and developed its own container format, planning to use it in its forthcoming reader for Windows and CE." See "Open Ebook Initiative."

- [March 31, 2000] "Content Management: Giving Them What They Need. [Maturity in Web

content management.]" By Luke Cavanagh. In *The Seybold Report on Internet Publishing* Volume 4, Number 7 (March 2000), pages 14-17. ['With more businesses looking for prebuilt solutions to fill their needs, vendors in content management have gained some steam of late. XML support is becoming more widespread in this space, and workflow components are becoming more sophisticated, as evidenced by the new workfow toolkit Inso introduced for its Dynabase system. Despite the absence of some major high-end players in this space, Web content management was a major topic of discussion among attendees. Web publishing systems are filling out, adding workflow, XML support, wireless output and links to syndication, e-commerce and other business systems. We review progress from two American and two European vendors.'] "A speaker at the Web Publishing Conference noted that the relatively infant term 'cross-media' is even starting to evolve in meaning. Originally, it meant taking content from print to the Web, often as simple as converting from Quark Xpress into a flat HTML file that could be posted online. Now, though, cross-media has grown to imply the ability not only to output to print and PC-based Web browsers, but also to cell phones, Palm Pilots, PDAs, e-books, refrigerators, toasters and the kitchen sink. This level of publishing is really where the help of XML is going to be needed. As for now, XML is a good way to separate form and content, handle metadata, and go cross-media. But it isn't necessarily the only way, and for many operations presents a huge financial and implementation challenge. But for those taking the step to this next level of cross-media, rich XML support is going to be much more important. At Seybold Boston 2000, we saw something new from several different vendors in different market segments. Each gives an idea of the types of ways in which people are looking to solve their Web content management problems, from the rich XML support of Inso to the print-to-HTML automation of TurboPress. Despite the conspicuous absences of such high-end players as Vignette, FutureTense, and Interwoven, we did see some key announcements in content management at Seybold. Inso added some key features to try to maintain its high-level market position and WorldWeb.net, more of a mid-level vendor, continued to try to make that up-market push. . . . Inso's eBusiness Technologies division last month announced a series of enhancements to its DynaBase product, which was one of the first XML-based content management systems and still sits in limited company at the high end of the market despite corporate turmoil over the past few years. . . WorldWeb.net's Expressroom 6 was targeted squarely at publishers looking to take print titles online. It offered separation of form and content, a Java-based client, and authoring modules all built on top of an XML database. . . The difficult problem of extracting content from Quark XPress documents into some other useful form, namely XML, has plagued the industry for years. Quark is finally addressing the problem itself, with Avenue, but in the meantime, a few QPS resellers have developed their own routines. . ."

- [March 31, 2000] "Catalog Systems: Quark Joins the Fray As XML Enters the Picture. [XML, cross-media in catalog systems.]" By George Alexander. In *The Seybold Report on Internet Publishing* Volume 4, Number 7 (March 2000), pages 23-26. ['Quark introduced eStage, a data server in step with this year's theme of employing XML in catalog publishing. Cascade's merger with Pindar fell through; Banta, DeskNet and OpenPages

moved forward.]' "They may not have generated the buzz that other booths did, but there were plenty of catalog systems to see at Seybold Boston. Last year, the catalog vendors were scurrying to finish up their web-browser interfaces. This year, web browsers were a given and the new thing you really had to have was XML. The change was striking from a year ago, when a number of the vendors were talking about XML, but it was hard to tell if it was just lip service. This year, they are actually using it. The most prominent new entrant into the catalog market is Quark, which unveiled its eStage system at the Boston event. This is part of Quark's movement into selected vertical markets (packaging will be another). Quark is now among the XML faithful, and Tim Gill sang XML's praises in his keynote address. Quark's eStage Content Builder interface. At left are content sets being developed for specific catalogs and promotions. At right are the elements for page 1 of the Milan promotion. The other new vendor was OpenPages, hitherto exclusively a newspaper system supplier, which jumped into the catalog market at this show. . . Quark has picked catalogs as one of the vertical industries it wants to target with its software. The eStage server has its own data store (based on SQL server), but it can also function as a virtual product database, a central gathering of metadata that points to external systems for the source files. EStage provides access to QuarkDMS, Oracle, Microsoft SQL Server, Informix, DB2, SyBase, and any other ODBC-compatible data source, including flat text files. EStage also provides utilities to collect data from XML data sources..."

- [March 31, 2000] "Web publishers ease searching task with MondoSearch. Interesting technology, innovative pricing from Danish software house." By Mark Walter. In *The Seybold Report on Internet Publishing* Volume 4, Number 7 (March 2000), page 37. "MondoSearch's innovation is in the way it filters search results into categories, which make it much easier for the searcher to figure out where to go when a search results in dozens or even hundreds of results. MondoSearch creates its categories from directories or metadata. In the former, a tool is provided that enables administrators to assign directories of the Web site to user-defined categories. Specific files within the directory can be made exceptions and assigned to other categories. The other method, metadata, reads HTML metatags or XML or SGML attributes to ascertain a file's category. . ."

- [March 31, 2000] "Metacode Introduces Tools for Enriching Content." By Mark Walter. In *The Seybold Report on Internet Publishing* Volume 4, Number 7 (March 2000), page 40. ['It's well known that adding contextual metadata adds value to content, but few tools on the market today help automate this laborious process. Hoping to fill this void is Metacode, which recently introduced Metatagger, a set of libraries for enriching documents.'] ". . . so far, are three products, two of which have just been released. The first, Metatagger, adds metadata to documents; its complement Metafind applies Metacode's techniques to the searching process. The third product, Metasage, is still under development. Part of the metatagger installation process involves Metacode coming out to help you load your schema (it takes classifications as XML DTDs) and integrating it with others from outside sources. Typically, the software is fed a training set of sample documents that help hone the software to the subject domain of the material. The libaries can emit output in various

formats; RDF-compliant XML records are the default."

- [March 31, 2000] "Unicode, XML, TEI, Omega and Scholarly Documents." By Yannis Haralambous - Atelier Fluxus Virus. Presented at the Sixteenth International Unicode Conference (IUC16), March 29, 2000. "This talk will give an overview of well-established tools like Unicode, XML and TEI and less known ones, like Omega, applied to the preparation (and further transformation into books, online publications, etc.) of scholarly documents, in particular those involving scholarly languages: Greek, Hebrew, Arabic, Syriac, etc. We will study (and give concrete examples of) different cases, ranging from simple texts to dictionaries, parallel texts, critical editions. In each case and for each language we will discuss the encoding and structure involved, as well as the necessary linguistic transformations like uppercasing and hyphenation, and different strata of the document like accents, short vowels, diacritics, editorial marks, etc. In particular we will discuss grammatical phenomena like the hamza rules in Arabic or the subscript iota in Greek and the choices they involve. Finally we will introduce typographical typesetting like yet another transformation of the document, and will discuss issues of macro- and micro-typography related to language and script properties. Our aim is to show how encoding, structuring, typesetting and linguistic transformations are intimately related to each other, illustrated by concrete examples in the above mentioned tools."

- [March 31, 2000] "Localisation Considerations for DTD Design." By Richard Ishida (Global Design Consultant, Xerox, United Kingdom). Presented at the Sixteenth International Unicode Conference (IUC16), March 30, 2000. "If you are creating XML documents that will be translated, there are things you should have built into your DTD to enable localisation to go smoothly and efficiently. This paper looks at some of the key issues. The paper refers to standard topics such as character encoding and locale declarations, but also covers topics such as implementation of emphasis and style conventions, handling of text fragments, use of text in attribute values, and the need for an element like HTML's SPAN. In addition, other topics which have traditionally been associated with translation of user interface messages become applicable due to the nature of XML documents. These include the provision of designer's notes, identification of non-translatable text, and use of element ids for automatic translation of elements. The paper assumes familiarity with XML and DTD concepts."

- [March 31, 2000] "Publishing with XML and the Open eBook Specification." By David Goldstein, Chief Technical Officer, Versaware, Inc. PowerPoint slides. Presented at XTech 2000. "Sparked by the growth in WEB access and the availability of low cost, hand-held reading devices, the electronic publication industry is on the verge of redefining our relationship with the "printed" word. We are witnessing a revolution in the way we read, access, search and purchase "books". However, there are several obstacles to overcome. These include the plethora of word processing and publishing formats, the interoperability gap separating traditional and electronic publishing, the representation and encoding of a myriad of languages and alphabets, and the high cost of re-processing content for various target media. The Open eBook (OEB) Specification is part of an industry-sponsored

initiative to resolve many of these issues. The specification seeks to have an immediate and direct impact on the creation, advancement, and growth of a flourishing eBook industry. Fully XML and Unicode compliant, this specification supports feature-rich and media-enhanced electronic publication. Content providers can now feel confident that their documents can be delivered on a wide range of reading devices without the need to reprocess. Any OEB-compliant reading system will display these publications in a manner that most faithfully represents the original content, even in consideration of limitations of a particular reading device. This presentation will introduce the goals and design principles of the Open eBook Specification and will detail its features, limitations and relationship to other industry standards. Current tools for producing and displaying OEB publications will be demonstrated and future directions of the OEB authoring committee's work will be described..." See "Open Ebook Initiative."

- [March 31, 2000] "XSLT in Document Indexing. [An XML-Based Approach to the Control of XML Document Indexing.]" By Jacek Ambroziak (Sun Microsystems). Presented at XTech 2000. ['This presentation discusses and demonstrates an easily modifiable, XML-based approach to the control of full-text indexing operations performed on XML documents... Jacek Ambroziak joined Sun Microsystems' XML Technology Center in 1999, where he's been applying his extensive background in natural language technologies, Java, Jini, and XML to the problems of XML document search and retrieval. Jacek has been with Sun Microsystems since 1992, when he became a Research Scientist in the Knowledge Technology Group of Sun Laboratories. While in this position, Jacek worked on an approach to text search called "conceptual indexing," which combines techniques from knowledge representation and natural language processing to enable a computer to systematically organize relationships among concepts. Jacek architected and implemented modular semantic lexicons, co-developed a modular text processing pipeline, and built a highly efficient conceptual database and search engine. Subsequent to this work he designed and implemented in Java a full-text search engine that became part of Sun's JavaHelp facility.']

- [March 31, 2000] "Tutorials: On Display: XML Web Pages with Mozilla." By Simon St.Laurent. From XML.com. March 30, 2000. ['Widespread support for XML in browsers is finally on the horizon. In the first of a series covering Mozilla, IE, and Opera, Simon St.Laurent looks at formatting XML with CSS2 inside Mozilla.'] "Although Cascading Style Sheets Level 2 provides a solid set of tools for presenting XML documents in web browsers, web developers have been waiting a very long time for an implementation that lets them really use their CSS skills with XML. Internet Explorer 5.0 took some credible first steps toward XML+CSS, but the latest work from Mozilla goes beyond first steps to a usable set of tools. The solid XML+CSS core and the underlying DOM support suggests that Mozilla will be a useful platform for building applications, not just web pages. Add to that a dash of XLink support, and it looks like Mozilla may be leading the pack. Mozilla's emphasis on standards-orientation makes its implementation of XML a real pleasure to work with. Developers used to working with CSS in an HTML context have a bit of extra

learning to do, as a CSS property called display is critical to presenting XML documents. This property doesn't generally receive much use in HTML. Fortunately, finding information on display isn't difficult. For the most part, I've relied on the W3C specs as documentation for writing this article, a real change from my usual practice of combing through vendor documentation and creating test cases to see if they're accurate. (In particular, I used the CSS2 Recommendation.) There are, of course, a few bugs yet to iron out -- this isn't even beta software yet -- though it should be quite soon. We'll start by exploring the XML+CSS support, building some test pages that will show off what's possible, and then connecting them together with some basic links. By the end of this article, we'll have a very capable set of tools for building simple web sites, and a solid foundation for building web applications..."

- [March 31, 2000] "XML-Deviant: Unifying XSLT Extensions." By Leigh Dodds. From XML.com. March 30, 2000. ['XSLT processors each have a different way of implementing extension functions. Developers in the XML community have stumbled upon this problem, and want to do something about it. Leigh Dodds analyzes the arguments and suggests a way forward.'] "Use any programming language for long enough and you'll quickly learn both its features and its limitations. XML developers working with XSLT are going through this learning process, and are beginning to identify some limitations. XSLT provides a well-defined extension mechanism, allowing developers to include custom processing in their style sheets. . . So what happens next? The problem seems to be clearly defined: XSLT doesn't have a standard API against which extension functions can be implemented. Contributors to both XSL-List and XML-DEV have suggested steps that need to be taken..."

- [March 31, 2000] "Keep it Simple...." By Edd Dumbill. From XML.com. March 30, 2000. ['The popularity of Sean McGrath's PYX notation has highlighted the value of simple syntax-based XML processing. Why stack layer upon layer of processing when you don't need it?'] "Don't despise XML's syntax. Programmers without a document-focused heritage may get the urge to put the XML syntax out of sight as soon as possible. Once the data is inside your program, why bother passing it around as XML? So, we're seeing (Java-) serialized DOMs passed between applications and other uses. However, that's just not XML. Serialized objects have been around for ages, very useful thank you, but they don't have the advantages of XML. . . PYX reminds us that a large amount of useful work can be done without any semantic interpretation of an XML document at all. The revolution that XML is bringing about on the Web isn't about object technology, but about an interoperable syntax. It's not about shoveling XML into your application to gain buzzword karma, but about exploring the new avenues of distributed information processing offered by XML."

- [March 30, 2000] "XML Protocol Comparisons." By Eric Prud'hommeaux. Updated March 29, 2000. "I put together a comparison of a bunch of XML protocols -- SOAP [http://www.w3.org/2000/03/29-XML-protocol-matrix#SOAP]; ICE [http://www.w3.org/2000/03/29-XML-protocol-matrix#ICE]; WDDX [http://www.w3.org/2000/03/29-XML-protocol-matrix#WDDX]; BizTalk [http://www.w3.org/2000/03/29-XML-protocol-matrix#BizTalk]; IOTP

[http://www.w3.org/2000/03/29-XML-protocol-matrix#IOTP]; TIP
[http://www.w3.org/2000/03/29-XML-protocol-matrix#TIP]; WfXML
[http://www.w3.org/2000/03/29-XML-protocol-matrix#WfXML]; ebXML
[http://www.w3.org/2000/03/29-XML-protocol-matrix#ebXML]; XMI
[http://www.w3.org/2000/03/29-XML-protocol-matrix#XMI] -- for everyone to
discuss/dispute. It is said that the best way to get a question answered on usenet is to post
an incorrect answer. Persuant to that, I have not done extensive readings of some of the
protocol papers during my characterizations, but at least they're all there in a forum where
we can compare apples and fruit baskets. I'll be adding more dimensions and would like
feedback on what people wish to compare. Also, I'd like to have anchor-rich HTML versions
of the documents so I can point to specific parts of the spec as supporting evidence..."

- [March 30, 2000] "XML Schemas: Setting Rules for XML Documents." By Simon
  St.Laurent. March 2000. Slideset presentation (24 slides). "Why schemas? (1) Common
  Vocabularies: Establishing common vocabularies makes it easy to build software that
  processes information according to a clearly defined set of rules. The larger the audience
  using the same vocabulary, the larger the audience. (2) Formal Sets of Rules: Because
  machines (computers) will be doing most of the XML processing, expressing those
  vocabularies in a form that computers can understand is important. The formal description
  must be regular, unambiguous, and relatively easy to process. (3) Building Contracts: On
  the human side of the information interchange equation, formal descriptions of vocabularies
  can provide a core set of rules for all participants in a series of transactions. Schemas can
  make it clear which kinds of information are required or optional for which kinds of
  transactions. . . ...it only covers what I could say in 90 minutes." For other resources on
  XML schema design and development, see "XML Schemas."

- [March 29, 2000] Perl and XML: A Review of Perl-XML Modules." By Michel Rodriguez
  (Senior Programmer-Analyst, Electronic Services, IEEE Standards Activities). 2000-03-21
  (v1.8). "Perl is without a doubt [and of course Python fans don't agree here ;--) ] the most
  powerful, and, and even the most devout Python zealots will agree here, the most widely
  used text processing language. It is especially in widespread use in the web world. It is then
  easy to understand why a whole bunch of Modules have been developed so the power of
  Perl, especially it's regular expression language, can be applied to XML data/documents
  (let's not start a religious war here on what XML files contain)... [we] review the main Perl
  XML modules, from the venerable XML::Parser to an interface with DBI, and DOM, XQL,
  XSLT XPath implementations and more, [identifying] the main characteristics of each
  module..." For related resources, see references in "XML and Perl."

- [March 28, 2000] "IBM unveils challenger to Microsoft's BizTalk." By Antone Gonsalves. In
  *PC Week* (March 27, 2000). "Hoping to capture mind share from rival Microsoft Corp., IBM
  today announced a new product that leverages Extensible Markup Language in connecting
  trading partners for electronic commerce. The WebSphere B2B Integrator is a competitor to

Microsoft's BizTalk Server, which was announced a year ago. Both products are scheduled to ship in the summer and will compete in the growing market for XML technology, a favorite among corporations for linking applications with trading partners. Even though Microsoft hasn't shipped a product, a recent survey of IT managers by Zona Research Inc. found the Redmond, Wash., company was the most influential vendor driving deployment of XML. Running a half grade behind Microsoft were Sun Microsystems Inc., IBM and Oracle Corp. Looking to bump Microsoft from the lead position, IBM plans a big marketing push this week at its WebSphere 2000 developer conference in Miami, where the company will unveil the B2B Integrator and VisualAge Application Rules, a new development tool for building e-commerce applications. The new XML server is the first implementation of IBM's Trading Partner Agreement Markup Language, a set of extensions that take XML beyond a simple data transport protocol to include capabilities that enable companies to integrate business processes, workflow, security and other services into a B2B transaction. IBM has submitted tpaML to the international standards body OASIS. tpaML is a key technology in IBM's Business-to-Business Protocol Framework, or BPF, a blueprint for electronic commerce and a competitor to Microsoft's BizTalk initiative, a standardization effort that has collected more than 130 schemas by which companies in vertical markets can implement XML-based applications."

- [March 28, 2000] "Novell to debut directory tool at BrainShare." By Scott Berinato and Mary Jo Foley. In *PC Week* (March 24, 2000). "Novell Inc. next week will use its user conference to test the efficacy of recent efforts to simplify its marketing message and attract a new generation of customers to buy into its directory-centric e-business strategy. A key piece of that strategy is the DirXML metadirectory, which Novell will debut in beta form at its BrainShare conference in Salt Lake City, sources said. The Provo, Utah, company also is preparing to create an e-Business Group, though it may not be ready to announce the group next week, other sources said. DirXML enables Novell's NDS eDirectory to inherit information from the many legacy directories in an enterprise and display it to an administrator, who can then manipulate and manage that information from the eDirectory interface. DirXML uses LDAP (Lightweight Directory Access Protocol) to connect to other directories and XML (Extensible Markup Language) to communicate between directories..." See the list of announcements.

- [March 28, 2000] "WebMethods adds CommerceOne to partner portfolio." By Geneva Sapp. In *InfoWorld* (March 28, 2000). "webMethods on Monday added a Commerce One partnership to its B2B Exchange portfolio that already includes Ariba, MySAP.com, chemconnect, and VerticalNet. 'WebMethods is the bridge between applications like Commerce One, Ariba, and others, and companies' back-end legacy systems,' said Anna Kerr, senior analyst at International Data Corp., in Framingham, Mass. "There is a gap in between, and WebMethods has very intelligently developed that bridge to put the two together.' Phillip Merrick, president and CEO of WebMethods, said the partnership with Commerce One goes beyond marketing to joint development. 'This is not just a joint-marketing, or a joint-selling kind of partnership. We're also involved in joint development

around this XML Common Business Library,' Merrick said. CommerceOne's XML Commerce Business Library (xCBL) is yet another play for an XML standard in procurement, like Ariba's cXML, officials said. '[xCBL] is Commerce One's set of XML definitions for procurement -- things like purchase orders, catalog data, payment notices, and shipping notices. xCBL provides the definitions for all those business documents,' Merrick said. WebMethods also supports other XML formats such as RosettaNet, the high-tech industry-specific XML repository for documents and shared business processes..."

- [March 28, 2000] "IBM to offer e-commerce integration software." By Wylie Wong. In *CNet News.com* (March 27, 2000). "IBM is moving further into the fast-growing software integration business. IBM today announced plans for new e-commerce software that allows companies to link their different computing systems so they can exchange data and conduct business over the Web. With today's move, IBM jumps further into a market where smaller players, such as Tibco, Neon Software, TSI and Vitria, have taken an early lead over bigger rivals Oracle, Microsoft and Sun, who are just entering the market. IBM today said it will ship in the late summer new software, called WebSphere B2B Integrator, that will let businesses use Extensible Markup Language (XML) to tie their computing systems together to do e-commerce. As for the other giant software makers, Microsoft plans to enter the market later this year with a product called BizTalk Server, while Oracle has recently released its own product, called XML Integration Server. Sun recently acquired Forte Software, which makes software integration technology. IBM, however, isn't new to software integration. Its popular MQSeries software is widely used by companies to allow their internal business applications, such as mainframe, financial and human resources software, to communicate. Like its rivals' products, IBM's forthcoming B2B Integration Server relies heavily on XML, a Web standard for exchanging data. The product features IBM's newly-created XML specification that details a common way for companies to define and execute business contracts over the Web. It will also include IBM's WebSphere application server, technology that runs transactions, and MQSeries messaging software, which is designed to ensure that information sent from a business application is delivered to its intended target. An insurance company, for example, can build a system that automatically routes claims to the appropriate department..."

- [March 25, 2000] "Search Middleware and the Simple Digital Library Interoperability Protocol." By Andreas Paepcke (Stanford University), Robert Brandriff (California Digital Library), Greg Janee (University of California at Santa Barbara), Ray Larson (University of California at Berkeley), Bertram Ludaescher (San Diego Supercomputer Center), Sergey Melnik (Stanford University), and Sriram Raghavan (Stanford University). In *D-Lib Magazine* Volume 6 Number 3 (March 2000) [ISSN: 1082-9873]. Abstract: "We describe our Simple Digital Library Interoperability Protocol (SDLIP), which allows clients to query information sources in a uniform syntax. The protocol was developed in a collaboration between Stanford, the Universities of California at Berkeley, and Santa Barbara, the San Diego Supercomputer Center, and the California Digital Library. In addition to introducing the protocol, we describe several of our design choices, and compare them with the

choices made in other search middleware approaches. The protocol allows for both stateful and stateless operation, supports multiple query languages, and defines a simple XML-based return format. A default query language that is included in SDLIP follows the evolving IETF DASL 'basicsearch'. This is an XML-encoded language reminiscent of SQL, but adjusted for use in full-text environments. SDLIP can be used with CORBA or HTTP." See the main news entry.

- [March 24, 2000] "Grass Roots XML." By Jon Bosak (Sun Microsystems). Slides from the XTech 2000 presentation, in three parts: "Back to Basics; XML Standardization; Who Will Control Electronic Commerce?" ['Jon Bosak gives Keynote Address at Xtech 2000. His Presentation "Grass Roots XML" speaks to the importance of the democratic process and the work of OASIS in the future of XML development.']

- [March 24, 2000] "The Blocks eXtensible eXchange Protocol." By Marshall T. Rose (Invisible Worlds, Inc.). IETF Internet-Draft 'draft-mrose-blocks-protocol-01'. Network Working Group. March 9, 2000. Abstract: "This memo describes the Blocks eXtensible eXchange Protocol (BXXP), a generic application protocol framework for connection-oriented, asynchronous request-response interactions. BXXP permits multiplexing of independent request/response streams over a single transport connection, supporting both textual and binary messages." Description: BXXP provides a generic application protocol framework for connection-oriented, asynchronous request-response interactions over TCP. At the core of BXXP is a framing mechanism that allows for peer-to-peer exchanges of requests and responses. The framing mechanism permits multiplexing multiple, simultaneous, and independent exchanges over a single transport connection with flow control and segmentation. Requests and responses are either textual (structured using XML) or arbitrary (structured using MIME). Frames are exchanged in the context of a 'channel'. Each channel has an associated "profile" that defines the syntax and semantics of the messages exchanged. Implicit in the operation of BXXP is the notion of channel management. In addition to defining BXXP's channel management profile, this document defines two core profiles: (1) the TLS transport security profile; and, (2) the SAS family of user authentication profiles. Other profiles, such as those used for data exchange, are defined by an application protocol designer. A registration template is provided for this purpose." Section 6.2: BXXP Channel Management DTD; Section 6.4: TLS Transport Security Profile DTD; Section 6.8: SASL Family of User Authentication Profiles DTD.

- [March 24, 2000] "Transcoding on the fly for the Web." By Nancy E. Dunn and Chris Rumble. IBM developerWorks Staff. [Published November 1999, Updated March 2000.] "The IBM WebSphere Transcoding Publisher provides a Web intermediary platform for XML and graphics conversions on the fly. A demonstration application shows how intermediary-based transcoding makes it possible to convert Web pages (or other files) from one format to another in real time -- without changing the original pages on the Web server. Content providers or conversion service providers can use the Transcoding Publisher for adapting Web pages for handheld devices, for transforming XML data, and for

dozens of other applications. In this interview, two IBM researchers explain how Web intermediary technology supports such conversions and provides a rich vein for more Web and XML conversion on the fly."

- [March 24, 2000] "Pinacor opens XML based reseller channel." By Dan Neel. In *InfoWorld* (March 23, 2000). "Technology resellers working through Pinacor, a distributor of technology products and services, will now have real-time access to inventory and shipping status through Pinacor Connect, an XML-based order management platform that went online Wednesday. For no additional charge above Pinacor's normal logistic and delivery fees, resellers can now link their own internal order management systems to Pinacor over the Internet. Those resellers then construct a valid XML request document, which includes customer log-in information, to receive real-time pricing, including information on the availability of products not housed in Pinacor's warehouse. Order entry, order correction, and tracking requests are also made in real-time using the Pinacor Connect system. 'We needed to develop a real-time feed from our suppliers,' said Sonia Bovio, a representative for Pinacor. 'XML proved the most flexible; now we're taking that technology and giving it to our resellers.' One of those resellers, Unicom, manages the procurement of computer hardware with a specialty in the health care industry. 'With XML, we're able to do business in real-time rather than in batches,' said Bob Davis, the CTO at Unicom. 'Now, when we want to check order status, we post this XML query, which is like an HTML tag, send it to Pinacor's URL, and they send the response right back to us in XML, parse out what we want, and put it on the screen. The information doesn't require a browser: as with XML, the definition of the data is in the data.' See the announcement "Pinacor Launches Seamless Business-to-Business Reseller Platform for the Digital Marketplace. Distributor delivers Pinacor Connect -- first XML-based e-business platform for real-time order management systems."

- [March 24, 2000] "Sun criticized for delays on Apache project." By Wylie Wong. In *CNet News.com* (March 23, 2000). "Sun Microsystems is feeling the heat after failing to deliver Web technology to a nonprofit group as promised. The company earlier this year pledged to donate Extensible Markup Language (XML) development tools to the nonprofit Apache Software Foundation, as part of a plan, along with other software makers, to promote adoption of the technology by making free tools available to developers. Sun even trumpeted the gesture in print advertisements and marketing brochures. Now, four months later, angry officials at Apache said the tools have still not been delivered. Sun representatives said the delay is the result of a legal snafu. Still, Sun has angered some within Apache for trying to take credit for work it hasn't done, said a person at Apache who requested anonymity. Sun ran an ad promoting its donation to Apache at an Apache convention two weeks ago. The source also said a Sun executive touted the donation in a speech at the convention. Apache in November announced plans to develop new XML (Extensible Markup Language) tools with technology donated by about half a dozen software companies, including Sun, IBM and DataChannel. Its goal is to further drive the adoption of XML, a Web standard for exchanging information, by building open-source

software tools. The plan is for IBM, Sun and a start-up called Exoffice to donate technology called XML parsers to Apache, so the organization could take the best features of each and meld them into one product. A parser dissects and reads XML text, much like a Web browser reads HTML to generate Web pages on a computer. XML allows businesses to easily and cheaply conduct online transactions with their customers. It also delivers sound, video and other data across the Web and allows for better Internet searching. Davidson said Sun's attorneys are still hammering out a licensing agreement to give the technology to Apache. The delay forced the other software makers in the project to tackle it on their own, and they have already built a first version of an XML tool without Sun's help, according to a source close to Apache. Sun's contribution is necessary to upgrade an XML tool that Apache is working on, and the delay is hampering the group's effort to give software developers the improved product Apache promoted when it launched the effort, the source at Apache said. Once Sun contributes its technology, Apache will quickly integrate Sun's parser into Apache's parser, then start work on a second version of the product, Davidson said. Sun and IBM expect to incorporate the new parser into their company's software products... Sun -- which previously contributed Java programming language technology to Apache -- hopes to work out a licensing agreement soon and give away its XML technology to Apache within a month. All the other companies who promised to donate XML technology to Apache's effort have contributed. Lotus and two independent software developers are giving away their Extensible StyleSheet Language (XSL) technology, which lets users define how a document is presented. DataChannel and BowStreet have also donated technology."

- [March 24, 2000] "TeX and XML-related news." By Michel Goossens, IT/ASD. "Xpath and XSLT together are powerful tools to build XML to HTML and TeX converters (in fact XSLT allows you to transform XML sources into a whole set of target formats). As explained in the Letter from the Editor part at the beginning of this CNL, we have used this technology to produce the present CNL by writing two stylesheets, one to translate the XHTML to HTML (in fact the tricky part is getting the tree structure of documents on the Web in place) and one for going from XHTML to LaTeX, which is much more complicated, since the XHTML model maps very poorly onto LaTeX . This is especially true if one has to translate pages optimized for viewing on the Web (*i.e.*, using color, visual effects, forms, etc.), which have no equivalent in LaTeX , that emphasizes structure rather than visual appearance. For those interested in how this technique can be used, the following two URLs provide more information: (1) Tutorial presented at the UKTUG Conference (Oxford University, 12-13 September 1999): "XML, XSL, two of a family of extensible languages" (http://wwwinfo.cern.ch/asdoc/WWW/publications/oxford99/oxford99main.html). (2) Presentation of PassiveTeX at the XML Developers' Conference (Montreal, 19-20 August 1999): "PassiveTeX: XML and TeX , doing it together..." (http://wwwinfo.cern.ch/asdoc/WWW/publications/xmldev99/passivetex.html). A series of lectures on XML (not only in the text-processing area, but also for databases, visualization, etc.) is planned for the third term (April-June 2000) of the Academic Training..." See also the reference page "SGML/XML and (La)TeX."

- [March 23, 2000] "Inside MSXML3 Performance." By Chris Lovett. MSDN *Extreme XML* (March 20, 2000). "I promised to write more about the new Microsoft XML Parser (MSXML) features, as several of you requested. This month's column coincides with the March 2000 Microsoft XML Parser (MSXML) Technology Preview release -- called MSXML3. Naturally, I couldn't resist the temptation to use this newest version of the DLL while writing this article. In the last column, I described several performance metrics that interest most of you as you develop your XML-based Web applications. The first two, working set and megabytes per second, were covered in some detail. In this article, we'll discuss a typical business-to-business scenario, and how MSXML3 can improve performance in the areas of the third and fourth metrics, requests per second and scaling. I'll continue using JScript for the examples because of its brevity, but I'll include some real C++ code in the downloadable zip -- as I did last time. All measurements in this article were taken from computers running Microsoft Windows 2000. All the charts and numbers below were measured using the C++ program, because that is the best way to get reliable numbers. In a scenario where a lot of small XML documents and style sheets are being pumped through a processing pipeline, the raw megabytes per second of the parser can be overshadowed by the setup and tear down costs of creating XML document objects and compiling XSL style sheets. Performance in such a scenario can also be hindered by contention problems on shared resources, which will actually show up as poor scaling on multi-processor computers. The good news is that MSXML3 can deliver a lot of performance improvements in this area, especially in multi-threaded scenarios..." Includes source code. See also the previous column, "Inside MSXML Performance" (February 21, 2000).

- [March 23, 2000] "How to Encode XML Data." By Chris Lovett. MSDN Web Workshop (March 17, 2000). Technical article. ['Many questions arise about how to make XML files transfer data properly between different platforms. Most of these questions stem from a lack of understanding of how XML encoding works. This article describes how it works and gives specific tips on how to use MSXML to encode XML correctly.'] "This article explains how character encoding works and specifically how it works in XML and the MSXML DOM. A lot of people have been asking me questions lately about how to make their XML files transfer data properly between different platforms. They create an XML document, type in data, stick a few tags around it, make the tags well-formed, and even put the `<?xml version="1.0"?>` declaration in for good measure. Then they try and load it up but get an unexpected error message from the Microsoft XML Parser (MSXML) saying that there's something wrong with their data. This can be frustrating to the new XML author. Shouldn't it just work? Well, not quite. It's likely that when you receive the unexpected error message from MSXML, the platform that is receiving your data stores it differently than the platform from which you sent it, resulting in character encoding problems. I'll discuss character encoding and standard character sets, Unicode, the HTML Content-Type header, the HTML Content-Type metatags, and character entities..."

- [March 23, 2000] "Industry Defrag: Here Comes XML. Is the introduction of XML in SQL Server a good thing? By Stephen Wynkoop. In *SQL Server Magazine* January 2000.

"Microsoft has recently started embracing Extensible Markup Language (XML), but embracing XML is different from putting it natively into a product. SQL Server administrators and database developers haven't missed full integration of XML in SQL Server, but they've now come to realize that they needed XML all along. In the next version of SQL Server, XML output will be a standard option, letting you create a channel of information -- including information pulled directly from the SQL Server -- that you can pass to other systems. If you combine XML and Data Transformation Services (DTS), bulk copy program (bcp) will continue to slip out of use, to the delight of most database developers and administrators. XML is available today only in a manner of speaking. You can use the language today with extensions that Microsoft released for use with SQL Server 6.5 and 7.0. These extensions are more workarounds than real solutions. The real strength of XML will come with the next release of SQL Server. But you can use the tools available today to begin working with XML, if you haven't already, and to start understanding what you can and can't do with it..."

- [March 23, 2000] "Style Matters: Integration by Parts: XSLT, XLink and SVG." By Didier Martin. From XML.com. March 22, 2000. ['Didier Martin gives us a practical demonstration of the power of XSLT, XLink and SVG, bringing them together to generate interactive, illustrated, technical documentation.'] "The example demonstrates building an interactive illustrated parts catalog with XML technologies. The example shows how we separate the data model from the presentation, how the model is transformed into a presentation language (HTML, SVG), and finally, how scripting and CSS properties are used to implement XLink behavior and user interactivity.... Unfortunately, current reality is that browsers do not support X-Linking to elements contained in different documents. And in fact, with the exception of Mozilla (Milestone 14) and Hybrick, none support XLink constructs at all. To compensate for this weakness, scripting could be used to link elements together, to provide XLink interpretation and, more particularly, the kind of XLink behavior that you require. As you can see by viewing the result of the XSLT transformation, the elements contained in the HTML table are linked to the elements in the SVG document and vice versa. The parts catalog document can be rendered in a browser IE5 with MSXML3.DLL installed. This will properly render the XML document by transforming it to HTML. Notice here that we used XSLT constructs that are compliant to the W3C Recommendation. You can also process the XSLT style sheet without any modifications either with XT or SAXON. (I didn't test it with Xalan or the Oracle XSLT engine but I expect that the style sheet will work with these engines too.) For more sophisticated presentation, it seems that the combination of CSS, scripting, and XSLT is required. By modifying the CSS properties dynamically at run time, we can provide a particular XLink interpretation and behavior. If a future XSLT Recommendation includes a standard way to output multiple documents from a single style sheet, then the XLink interpretation could be provided by the XSLT style sheet."

- [March 23, 2000] "XML-Deviant: Good Things Come In Small Packages." By Leigh Dodds. From XML.com. March 22, 2000. [This article has to do with compression and efficient

storage/transmission of XML.] "One of XML's strengths is its human-readability. But the consequent verbosity is also one of its weaknesses, according to a growing number of XML developers. . . Like any textual markup language, XML is verbose. There is a lot of 'redundant' data in an XML document, including white space, and element and attribute names. XML documents are therefore a prime candidate for compression. [...] However tiny XML-based traffic is today, if the current rate of adoption continues, XML transmission will be ubiquitous before long. Now may be the best time to consider some wider architectural problems: perhaps it's time to take a break from producing the unceasing flow of new standards. Considering how these standards fit together will reinforce our efforts toward the holy grail of Interoperability. Experiences from organizations like MITRE, as well as feedback from developers "on the factory floor," will be vital."

- [March 23, 2000] "Pyxie Perfect." By Edd Dumbill. From XML.com. March 22, 2000. "Pyxie now has Java and Perl implementations."

- [March 22, 2000] "SAX or Python EasySAX: SAX made Pythonic." By Paul Prescod. Presented at XTech 2000. Abstract: "EasySAX is a high level SAX-based API for working with XML event streams in Python. Where SAX was specifically designed as a low-level API, EasySAX is designed first and foremost to be easy to use, convenient and flexible. EasySAX has dynamic event handler dispatch mechanisms that make XML processing convenient by building on Python's dynamism. Where SAX users typically dispatch events using switch statements or hand-coded dispatch table, EasySAX builds a dispatch table automatically based upon method names and metadata. EasySAX also combines some of the best features of tree-based and event-based interfaces by allowing trees to built 'on-demand' from portions of parse streams. This allows the performance degradation of tree building to be minimized. EasySAX is currently in testing and the final release is expected [later]..." Work continues on this proposed 'unification API' *EventDOM*, presented initially under the name 'EasySAX' by Paul Prescod (ISOGEN/DataChannel) at the Spring XTech conference. "The package called EasySAX has been renamed EventDOM. It may be renamed again. I haven't put in time to think about names properly yet. The current status is that I've developed the idea and I have 90% of the code written. I will hopefully get a chance to finish the code in a few weeks but anyone who is brave and interested can ask me for it in the current state and try and make it work. There is a couple of days work there... the package isn't available yet but I have some slides on it that I gave at XTech 2000 when I was still calling it EasySAX: XML, PowerPoint, and PDF formats. Some discussion about the package has taken place on the Python XML-SIG mailing list." Note also: (1) Python Interface Declaration Language. [ Python Extension Proposal January-2000.]; (2) "Why I Promote Python." [local archive copy]

- [March 22, 2000] "Moving Home: Portable Site Information." By Lynn C. Rees. From XML.com (March 22, 2000). ['Web development frameworks are many and varied, but why should you have to rebuild your site structure for each one? XML comes to the rescue, in the form of the Portable Site Information project.'] "One common use of XML is to provide

data for template-based web pages created with XSLT. However, XML can be used to model the actual structure of a web site too. Portable Site Information is a project to develop an XML abstraction for template-based web sites, to allow their migration between site development frameworks such as NetObjects or Cocoon... [Rees concludes:] "Work on PSI is ongoing. Currently, PSI uses a standard DTD to define its syntax but we plan on migrating it to an RDF schema. This will allow us to exploit PSI with more tools, as well as use it with other RDF formats (like Dublin Core and RSS) to create even more powerful site models. We're cleaning up our current code into an LGPL library called psilib and then releasing it through psilib.sourceforge.net. It's turning into a useful tool for us and may benefit others, which only makes our jobs as web developers easier, especially if we get future site projects already laid out in PSI. XML is proven in modeling complex hierarchies for open exchange. Sites are no exception. Developing PSI has helped us glimpse the underlying patterns of the Web. More connects than divides site structures. We hope to see a standard reflecting this evolve so that any pain from future site evolution comes as a side effect of creation, not transportation. PSI may contribute to this. It may just dimly light the way. The end of portable site information is more important than the means." For links and description, see: "Portable Site Information (PSI)."

- [March 21, 2000] Big-name chemical firms join business e-commerce trend." By Erich Luening. In *CNet News.com* (March 21, 2000). "A group of big chemical and petroleum companies today said they are teaming to form an electronic marketplace, becoming the latest industrial firms to join the business e-commerce trend. Expected to be in operation by the third quarter, the new marketplace, dubbed Envera, is designed to connect and automate chemical and petroleum process companies, as well as handle spot auctions and purchases, the companies said. Some of the big-name backers of the venture include BF Goodrich, Eastman Chemical, Sunoco Chemicals, Castrol, and Rohm and Hass. Several members of the group will join the new marketplace while maintaining their own e-business exchanges for their suppliers and partners. For instance, last week Eastman Chemical announced it was partnering with exchange broker VerticalNet to build an online marketplace for the paint and coating industry. The consortium follows similar moves in the auto industry where car manufacturers have teamed to build unified marketplaces for their suppliers and common business partners. Last month, General Motors and Ford Motor announced plans to merge their Internet-based supply exchanges. The Envera marketplace is still in its preliminary stages. It is based on XML and the consortium said it is in discussions with leading business-to-business technology providers including IBM, Oracle, XML Solutions, and WebMethods to provide the software and services needed to get the project underway." See Industry News for press releases.

- [March 21, 2000] "Simplified DocBk XML on the Web. Introduction to DocBook." By Jonathan Eisenzopf, WebReference.com. In *LinuxToday* (March 19, 2000). "DocBook is an SGML format for writing structured documents. Until recently, it was maintained by the Davenport Group hosted at O'Reilly. Recently, it's been moved into the care of the OASIS group at XML.org. It's been used extensively by technical writers and publishers. The Linux

Documentation Project (LDP) is one notable project that's used DocBook extensively. O'Reilly is a company that uses DocBook internally quite a bit. In fact, I'm writing my Perl XML book entirely in DocBook. If you've never used SGML or XML before and are really fond of WYSIWYG editors, you're really going to hate DocBook at first. That's ok, because after you publish a few articles with it, you'll wonder why you've been using HTML this long. It's particularly useful when you need to make global changes, like copyrights :) DocBook is also widely supported by commercial and many non-commercial tools. In fact, once you have articles in DocBook format, you can convert them to formats like RTF, Postscript, and HTML. . . Recently, Norman Walsh created an XML version of DocBook called DocBk XML. Fortunately for us, he also created a simplified subset for writing articles called the Simplified DocBK XML DTD. The SDocBk homepage is http://www.nwalsh.com/docbook/simple/. The DTD and a CSS style sheet that will work in IE 5 is available. Norman has also written a set of XSL style-sheets that will work with DocBk XML and Simplified DocBk XML..." See also "DocBook XML DTD."

- [March 20, 2000] "Everything You Ever Wanted to Know About DTDs, But Were Afraid to Ask." By Arnaud Sahuguet (University of Pennsylvania). "For the last two years, XML has become an increasingly popular data-format embraced by a lot of different communities. XML is extremely attractive because it offers a simple, intuitive and uniform text-based syntax and is extensible. One can find today XML proposals for messages, text content delivery and presentation, data content, documents, software components, scientific data, real-estate ads, financial products, cooking recipes, etc. Unfortunately this also means that XML is far too general and if people plan to use it in serious applications (mainly for Electronic Document Interchange, in a broad sense), they will need to provide a specification (*i.e.*, structure, constraints, etc.) for their XML, which XML itself cannot offer. In order to specify and enforce this structure, people have been using Document Type Definitions (DTDs), inherited from SGML. In this paper, we present some preliminary results that explore how DTDs are being used for specifying the structure of XML documents. By looking at some publicly available DTDs, we look at how people are actually (mis)using DTDs, show some shortcomings, list some requirements and discuss possible replacements. [...] Conclusion: By its extensible nature, the XML language imperatively needs a constraint structure that is represented today by DTDs. Unfortunately, DTDs have been designed for a specific domain (text processing applications) which represents a small part of the scope of XML. As a specification tool for XML, DTDs are simply inadequate. In this paper we have presented the preliminary results of a survey we have started in Fall 1999. Its primary motivation was to better understand DTDs by looking at how they are actually being used to describe the structure of XML documents. Surprisingly, not unlike living organisms, XML DTDs have mutated from SGML DTDs into something that tries to fit the requirements of XML (both text and data processing). Because of their inherited shortcomings, XML DTDs have been hacked by users, in order to resolve serious issues such as tuple encoding and modularity. Other issues such as reference typing and versioning have simply been postponed, for lack of immediate workarounds. However, in this survey we have onlyscratched the surface of the problem: we not only need a better

way to capture the structures of XML documents, but also tools and methodologies to define them properly. It is encouraging though to note that the current proposals to replace DTDs are taking some of these issues into account and offer cleaner constructs to capture what is needed by XML applications. Finally, even though DTDs are ourishing, the corresponding XML documents are still nowhere to be found. The next interesting question will be to see how XML documents are being instantiated for a given DTD. This will be of special interest to the database community who will be 'responsible' for efficiently storing, indexing, querying, mediating and transforming such documents. But this is another story..." See also The XML Trial: FINDING of FACTS" (PowerPoint slides, 44x). Abstract; local archive copy.

- [March 20, 2000] "XML Protocol Viewpoints List - XTech 2000 XML Protocol BOF Notes." By Eric Prud'hommeaux (W3C). "The purpose of this page is to track the various viewpoints in the XML protocol area. The statements reflected here are attributed to people without benifit of supporting quotations from them. In other words, these are my best guess at stating their issues. If you have corrections or enhancements, I encourage you to contact me (Eric Prud'hommeaux)... Before the XTech2000 XML Protocol BOF, I encountered many folks who were interested in XML protocol standardization. I conferred with Henrik Nielson (Microsoft), Don Box (Delovopmentor), Gopol K (Microsoft), Glen Daniels (Allaire), Rob Weltman (Netscape), and someone else from Netscape who's name I don't remember. We discussed a multilayer architecture where the core consisted of a serialization protocol and an extensibility mechanism. This example shows some higher-level protocols stacked on the core serialization and extensibility... [and some dissents:] Dan Winer - XML-RPC as an interim reccomendation; Eric Prud'hommeaux - Transfer Adapters; Glen Daniels - Messaging Over RPC; Ken MacLeod - Keeping it Skinny; Eric Prud'hommeaux - Required Namespaces; Henry Thompson - contextual serialization."

- [March 18, 2000] "XWRAP: An XML-Enabled Wrapper Construction System for Web Information Sources." [Session 28: Web-Based Systems] By Ling Liu, Calton Pu, and Wei Han (Georgia Institute of Technology, College of Computing, Atlanta, Georgia 30332-0280). Paper presented at the 16th International Conference on Data Engineering. February 29 - March 3, 2000, Holiday Inn on the Bay, San Diego, CA, USA. [Proceedings] "This paper describes the methodology and the software development of XWRAP, an XML-enabled wrapper construction system for semi-automatic generation of wrapper programs. By XML-enabled we mean that the metadata about information content that are implicit in the original web pages will be extracted and encoded explicitly as XML tags in the wrapped documents. In addition, the query-based content filtering process is performed against the XML documents. The XWRAP wrapper generation framework has three distinct features. First, it explicitly separates tasks of building wrappers that are specific to a Web source from the tasks that are repetitive for any source, and uses a component library to provide basic building blocks for wrapper programs. Second, it provides a user-friendly interface program to allow wrapper developers to generate their wrapper code with a few mouse clicks. Third and most importantly, we introduce and develop a two-phase code generation

framework. The first phase utilizes an interactive interface facility to encode the source-specific metadata knowledge identified by individual wrapper developers as declarative information extraction rules. The second phase combines the information extraction rules generated at the first phase with the XWRAP component library to construct an executable wrapper program for the given web source. We report the initial experiments on performance of the XWRAP code generation system and the wrapper programs generated by XWRAP. [...] We have presented the XWRAP approach to semiautomatically generating wrappers for Web information sources and reported our initial experiments on performance of the XWRAP code generation system and the wrapper programs generated by XWRAP. Our wrapper generation framework has three distinct features. First, it explicitly separates tasks of building wrappers that are specific to a Web source from the tasks that are repetitive for any source, and uses a component library to provide basic building blocks for wrapper programs. Second, it provides a user-friendly interface program to allow wrapper developers to generate their wrapper code with a few mouse clicks. Third and most importantly, we introduce and develop a two-phase code generation framework. The first phase utilizes an interactive interface facility to encode the source-specific metadata knowledge identified by individual wrapper developers as declarative information extraction rules. The second phase combines the information extraction rules generated at the first phase with the XWRAP component library to construct an executable wrapper program for the given web source. Our work continues along three dimensions. The first aspect focuses on providing better tools to incorporate various machine learning algorithms to enhance the robustness of information extraction rules. The second aspect is to enrich the XWRAP information extraction rule language and the component library with enhanced pattern discovery capability and various optimization considerations. The third aspect concerns the incorporation of Microsoft repository technology to handle and manage the versioning issue and the metadata of the XWRAP wrappers. Furthermore, we are interested in investigating issues such as whether the ability of following hyperlinks should be a wrapper functionality at the level of information extraction or a mediator functionality at the level of information integration." See (subscription) the full text in PDF format.

- [March 18, 2000] "Efficient Storage of XML Data." By Carl-Christian Kanne and Guido Moerkotte (Lehrstuhl für Praktische Informatik III, Universität Mannheim, Germany). Paper presented at the 16th International Conference on Data Engineering. February 29 - March 3, 2000, Holiday Inn on the Bay, San Diego, CA, USA. [Proceedings] "NATIX is an efficient, native repository for storing, retrieving and managing XML documents. Other systems map XML data into structures maintainable by traditional DBMS. This introduces additional layers between the logical data and its physical storage, slowing down both updates and query processing. NATIX is native in the sense that it supports tree-structured objects like XML documents at low architecture levels. One example for this low-level support of tree-structured large objects is our parameterizable split algorithm. It dynamically maintains physical records of size smaller than a page which contain sets of connected tree nodes. This not only improves efficiency by clustering sub-trees but also facilitates their compact representation. [...] Our XML repository NATIX has an integrated tree stor-age manager

that manages clustered groups of document tree nodes that are treated as atomic by the underlying record manager. As subtrees of the document are changed, clustered nodes can become records of their own or again be merged into clusters. In contrast to traditional large object (LOB) managers or file systems, the decisions which parts of a document reside on the same page are based on the semantics of the data. Additionally, to satisfy special application requirements, clustering of certain node types can be enforced or forbidden by a configuration matrix." See (subscription) the full text in PDF format.

- [March 18, 2000] "Oracle8i -- The XML Enabled Data Management System." [Session 26: XML and Databases] By Sandeepan Banerjee, Vishu Krishnamurthy, Muralidhar Krishnaprasad and Ravi Murthy (Oracle Corporation). Paper presented at the 16th International Conference on Data Engineering. February 29 - March 3, 2000, Holiday Inn on the Bay, San Diego, CA, USA. [Proceedings] "XML is here as the internet standard for information exchange among e-businesses and applications. With its dramatic adoption and its ability to model structured, unstructured and semi-structured data, XML has the potential of becoming the data model for internet data. In the recent years, Oracle has evolved its DBMS to support complex, structured, and un-structured data. Oracle has now extended that technology to enable the storage and querying of XML data by evolving its DBMS to an XML enabled DBMS - Oracle8i. In this paper, we will present Oracle's XML-enabling database technology. In particular, we will discuss how XML data can be stored, managed, and queried in the Oracle8i database. [...] XML is emerging as the standard for data inter-change on the web. Oracle8i is XML-enabled to handle the current needs of the market. Oracle8i is capable of storing structured XML data as object-relational data, and unstructured XML document as interMedia Text data. Correspondingly, Oracle8i also provides the ability to automatically extract object-relational data as XML. In Oracle8i, efficient querying of XML data is facilitated using standard SQL. Oracle8i also provides the ability to access XML documents using the DOM (Document Object Model) API. Oracle8i will continue to evolve to meet the needs of the web. Oracle8i's highly scalable, robust, database platform will be evolved to become a leading XML server providing efficient and seamless XML support using standard APIs, languages and protocols." See (subscription) the full text in PDF format.

- [March 18, 2000] "XML and DB2." [Session 26: XML and Databases] By Josephine Cheng and Jane Xu (IBM Santa Teresa Laboratory). Paper presented at the 16th International Conference on Data Engineering. February 29 - March 3, 2000, Holiday Inn on the Bay, San Diego, CA, USA. [Proceedings] "The eXtensible Markup Language (XML) is a key technology that facilitates both information exchange and e-business transactions. Starting with DB2 UDB Net. Data V1, an application can generate XML documents from SQL queries against DB2 or any ODBC compliant databases. Today DB2 UDB XML Extender not only serves as a repository for both XML documents and their Document Type Definitions (DTDs), but also provides data management functionalities such as data integrity, security, recoverability and manageability. User has the option to store the entire document as an XML user-defined column or to decompose the document into multiple

tables and columns. Fast search via indices is provided for both XML elements and attributes. Section search can be done against the content of the document. Query syntax adheres to W3C standards such as Extensive Stylesheet Language Transformation (XSLT) and XML Path Language (XPath) specifications. User can retrieve the entire document or extract XML elements and attributes dynamically in an SQL query. In addition, XML Extender provides stored procedure to generate XML documents from existing data. Together with Net.Data, one can browse the content of the XML documents via the Internet. [...] An end-to-end solution for storing and retrieving XML documents for both business-to-business and business-to-consumer (via browser) processing using DB2 UDB XML Extender and DB2 UDB Net.Data has been described in this paper. In particular, it has been shown that an XML document can be stored as an XML column or decomposed into multiple DB2 tables and columns. In addition, XML document can be generated from existing DB2 data. Readers interested in experimenting with XML Extender and DB2 UDB Net.Data can download the resources: (1) http://www-4.ibm.com/software/data/db2/extenders/xmlext and (2) http://www-4.ibm.com/software/data/net.data. ['DB2's XML Extender provides new data types that let you store XML documents in DB2 databases and new functions that assist you in working with these structured documents. Entire XML documents can be stored in DB2 databases as character data or stored as external files but still managed by DB2. Retrieval functions allow you to retrieve either the entire XML document or individual elements or attibutes.'] See (subscription) the full text in PDF format.

- [March 18, 2000] "XML Database Products." By Ronald Bourret. [Updated] (March 14, 2000). "In this Web page, I have tried to capture the current state of the market, gathered from Web sites, product reviews, XML webzines, and other XML resource guides. Although complete description of how to use XML with databases is beyond the scope of this page (see instead 'XML and Databases), a brief review will help you choose what product is right for you. XML documents fall into two broad categories: *data-centric* and *document-centric*. Data-centric documents are those were XML is used as a data transport. They include sales orders, patient records, and scientific data and their physical structure -- the order of sibling elements, whether data is stored in attributes or PCDATA-only elements, whether entities are used -- is often unimportant. A special case of data-centric documents is dynamic Web pages, such as online catalogs and address lists, which are constructed from known, regular sets of data. Document-centric documents are those in which XML is used for its SGML-like capabilities, such as in user's manuals, static Web pages, and marketing brochures. They are characterized by irregular structure and mixed content and their physical structure is important..." [Related XML-DEV post: 'I have spent the last week trolling the Web for new database products that you can use with XML. Perhaps I've simply gotten better at finding things, but it appears the the number of products has exploded since I last updated the list three months ago. For one thing, almost all of the major database companies have released XML extensions or are in beta. But there are also a number of native XML databases coming to market (particularly intriguing was IceBreaker, which has a footprint of < 50K), as well as several persistent DOM implementations. On top

of this are an ever-growing number of middleware products, XML-enabled Web servers, and XML servers -- platforms for deploying XML-based e-commerce systems. I can't help but wonder if, in a year, the interaction between XML and databases will be so pervasive that the list won't even be necessary..."]

- [March 18, 2000] "The XML Revolution: Technologies for the future Web." By Anders Møller and Michael I. Schwartzbach (BRICS Research Center, University of Aarhus, Denmark). "This 130+ page slide collection provides an introduction and overview of XML, Namespaces, XLink, XPointer, XPath, DSD, XSLT, and XML-QL, including selected links to more information about each topic... The tutorial gives a thorough tour of: XML, both a concrete and a conceptual description; Namespaces, about avoiding nameclashes in markup; XLink, generalizing the HTML link model; XPointer, for fine-grained addressing in documents; XPath, used extensively in both XPointer and XSLT; DSD, a simple but powerful schema language; XSLT, for making transformations of XML documents; XML-QL, query languages generalizing SQL to XML. Furthermore, the tutorial contains selected links for more information about each topic. The slides are designed with concrete motivation and technical contents in focus, for the reader who wishes to understand and actually use these technologies."

- [March 18, 2000] "Shrink-wrapped XML: Firm to provide laptops with new listing technology." By Warren Lutz. In *Inman News [Features]* (March 16, 2000). "The XML Web data language might seem like heady stuff, but it could be yours for $2,500. That's the starting price Tahoe City, California-based OpenMLS has set for what it calls a 'shrink wrapped' XML listing management system for brokers. The product, called PureXML, comes installed in laptop computers running on the Windows 2000 operating system. PureXML also acts as a Web server, allowing consumers to search the listings brokers choose to make available on the Internet... Some Web experts believe XML will revolutionize the way business is conducted on the Internet and how consumers find products and services, including real estate. At least two XML specifications have been developed for residential property listings: RELML, drafted through collaboration with OpenMLS, 4thWorldTelecom and HomeSeekers.com; and RETS, developed by the National Association of Realtors and several MLS and technology firms."

- [March 18, 2000] "New XML standards: MBAA works with Data Interchange Standards Group for April Release." In *Inman News [Features]* (March 1, 2000). "The Mortgage Banker's Association of America is working on standards for XML, or extensible markup language -- a more comprehensive version of HTML -- and has contracted with an e-commerce to provide such services. Data Interchange Standards Association, which has partnered with several XML standards groups, will provide collaborative services to MBAA's Mortgage Industry Standards Maintenance Organization. The organization is trying to consolidate an array of independent XML initiatives. DISA will develop a Mortgage Data Dictionary in XML, representing mortgage data, a mortgage data model and repository tools. At the top of the list are unifying proprietary XML formats and a creating a core data

set for establishing the dictionary, which will serve as a single source for XML document definitions. The first specifications may be released as early as April." See: "Mortgage Bankers Association of America XML Workgroup."

- [March 18, 2000] "Data Junction Releases XML-Enabling Product." By Amy Newman. In *Internet News.com* (March 10, 2000). "Data transformation software vendor Data Junction Corp. this week released XML Junction. XML Junction aims to provide e-commerce and business integration professionals with the ability to XML-enable virtually any application or data source for a full range of e-commerce integration, application integration, and business-to-business data exchange projects. XML Junction features the automated creation of Document Type Definitions (DTDs) and XML documents, as well as a myriad data-mapping and data-manipulation capabilities. The product leverages Data Junction's proven drag-and-drop interface and integration engine to rapidly map and transform more than 100 application and data formats to XML. DTDs and XML documents are automatically created. This enables data stored in any format (e.g., EDI, XML, SQL, Cobol, HL7 and SAP) to be published to the Web or exchanged with any external application. In addition, data stored in XML documents and traditional applications can be manipulated to ensure compliance with any standard, such as those used by BizTalk, Schema.net, Ariba's Commerce XML and Financial Products Markup Language (FpML), as well as non-XML business-to-business standards, such as Open Buying on the Internet and RosettaNet."

- [March 18, 2000] "X-traWeb Releases Wireless Markup Language X-Node." By Amy Newman (Managing Editor, ServerWatch). In *Internet News.com* (March 17, 2000). "X-traWeb Inc., a wholly-owned subsidiary of World Wireless Communications Inc. Friday unveiled its new Wireless Markup Language (WML) X-Node. The WML X-Node provides connectivity between Web-enabled devices and Wireless Application Protocol (WAP) enabled personal communicators. WAP facilitates access to Internet content from wireless telephones and mobile computing devices that employ micro-browsers. According to the WAP Forum, by 2001 there will be more than 530 million wireless subscribers. This version of X-Node enables customers to monitor and control virtually any device using the Internet and a standard wireless platform, David Singer, World Wireless chairman, chief executive officer and president said..." See "WAP Wireless Markup Language Specification (WML)."

- [March 17, 2000] "Mobile users' new voice. AT&T and Lucent tap VoiceXML spec for new services." By Grant Du Bois. In *PC Week [Online]* Volume 17, Number 11 (March 10, 2000), page 16. " An Internet standard for voice communications is beginning to spawn new services for mobile professionals. Forthcoming services from AT&T Corp. and Lucent Technologies Inc. are part of a trend to use VoiceXML (Extensible Markup Language) to provide standardized speech platforms, applications, services and development tools to increase access to Internet content and services by voice. Version 1.0 of the VoiceXML specification, which the VoiceXML Forum released last week at the Computer Telephony Expo in Los Angeles, simplifies the creation of Web-based interactive voice response services; enables voice access by phone to Web sites, company intranets and call center

databases; and provides a platform for new devices and appliances. AT&T, of Basking Ridge, N.J., is using VoiceXML in a service it is testing for its WorldNet Internet service. Called Unified Alerting, the service uses VoiceXML to act as a bridge between the public phone network and the Internet..." For description and references, see "VoiceXML Forum."

- [March 17, 2000] "How XML Enables Dynamic Content." By Jeffrey Vogel. In *Network World* Volume 17 Number 11 (March 13, 2000), page 39. ['Update: Almost every Web site offers some form of dynamic content. Whether it's stock quotes, personalized account information or movie show times, users expect customized information to be delivered quickly and accurately.] "As more firms build dynamic Web sites, they are turning to XML-based Web content management and delivery systems to help manage, integrate and communicate information to constituents in real time. The key to the systems is their XML base. XML enables the separation of content from business logic and presentation. By defining the content of a document separately from its formatting, XML makes it easier to reuse the content in other applications or presentation environments. To understand XML's role in dynamic Web content delivery, one must first understand the concept of tags. Like HTML, XML uses elements and attributes, which are indicated in a document using tags. But unlike HTML - which only can describe how to display content, not what the content is - XML enables tagging of information in a document that describes what that content is about, in explicit terminology and implicit nesting structure. XML's tag structure lets users define and index sets of data however they wish - that is, to structure documents according to their needs... finding a content management system that has the ability to transform XML to HTML on the server level, before it is sent to the user's browser, is critical. Some systems do this by "walking" the tree of an XML document, scanning each tag and building an HTML file by combining the tags and a template, which incorporates the business logic that has been scripted. The result is a dynamic document that changes in response to changes in content, logic and/or presentation."

- [March 17, 2000] "Bowstreet boosts B2B software. Business Web Factory package gets improved performance and Linux support." By Carolyn D. Marsan. In *Network World* Volume 17 Number 11 (March 13, 2000), pages 33-34. "Users looking to develop business-to-business e-commerce Web sites may be interested in two new products Bowstreet announced today. The start-up in Portsmouth, N.H., is upgrading its flagship product, Bowstreet Business Web Factory 2.0, with enhanced performance, support for Linux and a new name. The software, previously known as Bowstreet Business Automation Factory, automates the development of business-to-business Web sites, allowing business executives, rather than IT specialists, to update and customize sites for partners and customers. The software relies on an automation engine that assembles Web sites using XML-based user profiles, templates and software components stored in a directory."

- [March 17, 2000] "Hype aside, WAP has worries." By Carmen Nobel. In *PC Week [Online]* Volume 17, Number 11 (March 10, 2000), page 10. "The running joke in the wireless industry is that WAP doesn't stand for Wireless Application Protocol, but rather 'Where are

the phones'. Although the initial version of the WAP specification -- which essentially describes how to display Internet data on mobile phones -- has been ratified, few WAP products are available in the market. Serious issues involving the protocol, such as security holes, intellectual property rights, competitive interim solutions and slow product cycles, could impede delivery of more browsers and devices that support the spec. In light of the recent hacking scares in the industry, security may be the biggest concern at the moment for WAP. While the current spec includes some security, there is a notable holes... As for intellectual property, several companies claim to have invented parts of the specification. Most public among the claims is one made by Geoworks Corp., of Alameda, Calif. Geoworks has a 1994 patent on some of its wireless technology that it says is part of the WAP standard. 'If Geoworks does have a claim, it could be a death knell for the standard', said Jon Oakes, president and CEO of ThinAirApps." See "WAP Wireless Markup Language Specification (WML)."

- [March 17, 2000] "New Standard Tames Paperwork Beast." By Joseph McKendrick. In ent - The Independent Newspaper for Windows NT Enterprise Computing [Online] Volume 5 Number 4 (March 08, 2000), pages 23, 27. "For years, traditional electronic data interchange (EDI) agreements were forged on paper. Companies signed off on agreed upon specifications for connections, protocols, and types of documents to be passed back and forth. With the Web opening up electronic trading relationships to tens of thousands of new companies, the stacks of agreements going back and forth could wipe out entire forests. Now, a proposed new standard may help companies cement Web trading relationships online, before they start online transactions. IBM Corp. (www.ibm.com), which originated the proposal, calls the XML-based initiative Trading Partner Agreement Markup Language (tpaML). Recently, IBM submitted tpaML specs to the XML standards consortium OASIS (www.oasis-open.org). Developed at IBM's Advanced Commerce Institute, the tpaML specification uses XML to define and implement electronic contracts, such as general contract terms and conditions, participant roles, communication and security protocols, and business processes. The tpaML standard defines how trading partners will interact at the transport, document exchange, and business protocol layers. TpaML is a complementary technology to ebXML, the Electronic Business XML initiative, which is a joint effort of the United Nations/CEFACT and OASIS to establish a global framework for the exchange of electronic business data. Vendors that have endorsed tpaML for potential use with their customers include CommerceQuest, DataChannel, Extricity, Geac/JBA, Harbinger, JDA, Infinium, Intelisys, Mincom, PeopleSoft, Sterling Commerce, and Synquest. It is unclear whether Microsoft -- also a member of OASIS -- will buy into the standard or adopt its own variation." See "Trading Partner Agreement Markup Language (tpaML)."

- [March 17, 2000] "Microsoft spins off HomeAdvisor." By Mary Jo Foley. In ZDNN (March 16, 2000). ['Microsoft's march into the home has another connotation. MSN real estate site will stand alone and jump into the mortgage business.'] "Microsoft is continuing to slowly but surely divest itself of its online content properties. Its latest move: On Thursday, the

company announced plans to spin off its MSN HomeAdvisor real-estate site as a separate business. Microsoft has spun off a number of verticals over the past couple of years, including its MSNBC news site, Expedia travel site, and CarPoint car dealer site. A few of these, like Expedia, have gone on to become standalone public companies. CarPoint, a Microsoft-Ford Motor Co. joint venture, likewise could be poised to go public, as Microsoft officials have hinted as of late. . . While Microsoft talks up HomeAdvisor's 750,000 home listings and 2.5 million unique visitors per month to the HomeAdvisor.com site on MSN, it's the underlying transaction platform that Microsoft is hoping will make the new company successful. This platform, to which Microsoft refers internally as 'Mortgage ATM,' is one of Microsoft's first implementations of its BizTalk technology. The platform basically provides an XML-based infrastructure that links home buyers and sellers. HomeAdvisor Technologies plans to customize the transaction platform and distribute it, through partners, to banks, lenders and real estate professionals In the coming weeks, Microsoft also is adding an automated loan/credit-approval platform to the HomeAdvisor site, as well."

- [March 17, 2000] "Invest in both content management and XML to strengthen your site." By Laura Wonnacott. In *InfoWorld* (March 10, 2000). "[InfoWorld Web] Site Savvy -- I've spent little time flexing our savvy muscles. To date, I've revealed many of our mistakes. In recognizing that even worst-case experiences carry a golden foundation, we did make two savvy decisions that will play in our favor: our investments in content management and XML solutions. We were looking for not only a content management system, but also for a solution that supported XML. We saw through the hype surrounding XML and recognized its true strengths. We knew a key ingredient in our future success would be our ability to separate content, format, and business logic. Our pursuit revealed one vendor and product of choice -- Inso's Dynabase. Our decision to use XML was not only forward-thinking, but probably the best technology choice for InfoWorld.com in the long haul. Sure, HTML is the foundation of the Web as far as a publishing medium. But despite its fame, a lot of meaningful information remains obscured. With XML, meaning can be determined by the data stored in elements, rather than by a less intelligent technique, such as the number of times a word occurs in the document. Unlike HTML, XML is focused on document structure vs. document formatting. XML enhances the information in documents. For example, stories on our site include both a category tag and an audience tag. This data goes along with the story in a very structured way. It is then easy to aggregate meaningful data. For example, from our Home Page you can access both our subject indexes and our sections. Here, we effortlessly aggregate content based on subject..."

- [March 17, 2000] "Coming Soon: Raven." By Sebastian Rupley. In *PC Magazine* (March 14, 2000). "Lotus, a company that has scored long-term success with its Notes product for workgroup collaboration and messaging, is seeking to mine the same territory with new knowledge management software code-named Raven. As Lotus prepares to test Raven in several enterprises, Microsoft is planning to move its Exchange technology in the direction of knowledge management, and several smaller players, such as Cognos, are shaping up as competitors as well...Raven is positioned to provide a single portal -- accessible via a

browser -- that will allow users in an enterprise to access information and applications on a given subject or track down the right knowledgeable person within an organization on a given topic. The technology, which is designed to take advantage of Lotus's Domino messaging and groupware platform and Notes technology, as well as IBM's DB2 database technology, will include groupware-like features designed to organize related tasks, teams, and projects. The most direct competition for Lotus's Raven, though, may end up coming from Microsoft's upcoming Exchange 2000 technology. Microsoft has been positioning Exchange 2000, due to ship midyear, as a 'collaboration server' functioning as the core building block within a company's knowledge infrastructure. By taking advantage of Internet standards such as HTML and XML to help organizations integrate Exchange with their IT infrastructures, and by working with all kinds of external databases, Microsoft aims to change common perceptions of Exchange. Microsoft wants organizations to stop thinking of Exchange as simply an e-mail platform and start thinking of it as a company-wide groupware and knowledge-sharing platform..."

- [March 17, 2000] "Taking To The Air: The Race is On." By Ben Elgin. In *ZDNet DevHead* (March 15, 2000). "Test-driving its new talent, 300-person C-bridge just polished off a pilot deployment, taking data from a company's enterprise-resource-planning system, converting it into XML and translating it into a wireless markup language. Employees then access the company data via cell phone and other devices. Meanwhile, front-end experts like LDS are betting that plenty of corporations will need help translating traditional HTML content to fit tiny device screens. LDS, a 170-person, New Jersey-based integrator, is quickly trying to extend its expertise in mark-up languages to the wireless arena..."

- [March 16, 2000] "Shaping a CBR View with XML." By Conor Hayes and P. Cunningham (Department of Computer Science, Trinity College, Dublin). Pages 468-481 (with 11 references) in *Case-Based Reasoning Research and Development. Proceedings of the Third International Conference on Case-Based Reasoning, ICCBR-99.* [Seeon Monastery, Germany, 27-30 July 1999.] Lecture Notes in Artificial Intelligence, Volume 1650. Edited by K.-D. Althoff, R. Bergmann, and L.K. Branting. Berlin, Germany: Springer-Verlag, 1999. "Abstract: Case based reasoning has found increasing application on the Internet as an assistant in Internet commerce stores and as a reasoning agent for online technical support. The strength of CBR in this area stems from its reuse of the knowledge base associated with a particular application, thus providing an ideal way to make personalised configuration or technical information available to the Internet user. Since case data may be one aspect of a company's entire corporate knowledge system, it is important to integrate case data easily within a company's IT infrastructure, using industry specific vocabulary. We suggest XML as the likely candidate to provide such integration. Some applications have already begun to use XML as a case representation language. We review these and present the idea of a standard case view in XML that can work with the vocabularies or namespaces being developed by specific industries. Earlier research has produced version 1.0 of a Case Based Markup Language which attempts to mark up cases in XML to enable distributed computing. The drawbacks of this implementation are outlined, as well as the

developments in XML that allow us to produce an XML 'View' of a company's knowledge system. We detail the benefits of our system for industry in general in terms of extensibility, ease of reuse and interoperability." See the outline and abstract of the related paper, "Distributed CBR Using XML." [local copies: paper/Postscript, abstract/HTML] See: "Case Based Markup Language (CBML)."

- [March 16, 2000] "Enhancing XSL. An in-depth look at the new XSLT support in the MSXML preview release." By Kurt Cagle. March, 2000. From MSDN Web Workshop. "XSL provides a way of performing complex transformations on XML data. By using combinations of templates and scripting, you can significantly expand these transformations to perform precise validation and queries, incorporate subordinate documents, and generate highly sophisticated applications from any data. In this article, I will look at the basic architecture of XSL, focusing on how XSL uses template mechanisms to match specific nodes with output. I'll also point out places where the XSL mechanism by itself suffers some limitations that can be overcome through external mechanisms. Note The examples in the text are taken from the samples that accompany this article. You can download the samples and review the corresponding sample file as you read the discussions pertaining to particular examples. To run the samples, open Displaytransforms.html and click the links." See "March 2000 MSXML Release. The newest drop of our XML parser, with better XSLT/XPath support."

- [March 16, 2000] "Communicating XML Data Over the Web with WebDAV." By Craig Neable and Sean Lyndersay. From MSDN Web Workshop. (March 03, 2000). ['Learn about WebDAV, which has become an important communication protocol for the Web as an extension to HTTP 1.1, and how it could be useful in your client/server architecture.'] "With increased focus on Internet standards and network interoperability, WebDAV (Web Distributed Authoring and Versioning) has become an important communication protocol for the Web as an extension to HTTP 1.1 (see IETF RFC 2616 for more information). The WebDAV specification (see IETF RFC 2518 for more information) was published by the Internet Engineering Task Force (IETF) in February 1999, with significant contributions from Microsoft, and with support from many third-party vendors such as Netscape, Xerox, IBM, and Novell. At Microsoft, WebDAV has found application in many different areas. It enables rich, collaborative publishing to Microsoft Internet Information Services (IIS) 5.0 servers via the Web. It is the protocol behind the Microsoft Office 2000 Web Folders. And it is the technology that provides a Web interface to the Microsoft Exchange 2000 Web Store, allowing direct access to Exchange's object-oriented, hierarchical database over the Web. Because of its inherent integration with Extensible Markup Language (XML), WebDAV not only has a large dependency on XML, but also has emerged as an excellent method for communicating XML data over the Web. However, before the strength of coupling these technologies can fully be understood, it is important to understand what WebDAV is and how it could be useful in your client/server architecture..." See also the WebDAV Web site and "WEBDAV (Extensions for Distributed Authoring and Versioning on the World Wide Web."
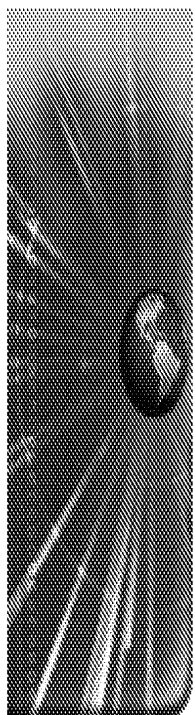
- [March 16, 2000] "Breaking News in XML." By Eric Armstrong. In *JavaWorld Magazine* Volume 5 Issue 2 (March 2000). ['Despite the scanty turnout, the recent XTech 2000 show produced several important XML/Java-related announcements.'] "Advances in XML technology keep heating up. Announcements at the recent XTech 2000 show included a standard Java API, a new parsing mechanism, and a powerful new schema language. Surprising security problems stemming from unwise use of XML were also spotlighted. In this article, Eric Armstrong surveys the highlights. Plus: a detailed discussion of the advantages of schemata over DTDs can be found in the Sidebar. [For example:] JAXP: The Java standard for XML; XML: Unexpected security holes; EasySAX: A better parsing mechanism? SML: Is a simpler XML a good idea? RELAX: Your schema is here!..."

- [March 16, 2000] "Programming XML in Java, Part 1. Use the Simple API for XML (SAX) to process XML in Java easily. [XML Extra.]" By Mark Johnson. In *JavaWorld Magazine* Volume 5 Issue 2 (March 2000). "In Web-authoring systems and information channel definitions, in middleware and in the core of enterprise databases, organizations and individuals are embracing XML as a powerful tool to help solve their data-management problems. But as powerful as it may be for representing data, XML is useless without an application to process it. In this article, you'll learn to use the Simple API for XML (SAX) interface to process XML documents in Java. The SAX API is one of the simplest and most lightweight interfaces for handling XML. In this article, I'll use IBM's XML4J implementation of SAX, but since the API is standardized, your application could substitute any package that implements SAX... This article is a follow-up to my introductory article, "XML for the absolute beginner", in the April 1999 issue of JavaWorld (see the Resources section below for the URL). That article described XML; I will now build on that description and show in detail how to create an application that uses the Simple API for Java (SAX), a lightweight and powerful standard Java API for processing XML. The example code used here uses the SAX API to read an XML file and create a useful structure of objects. By the time you've finished this article, you'll be ready to create your own XML-based applications."

- [March 16, 2000] "Scripting languages in the marketplace. Tcl and other communities host annual conferences." By Cameron Laird and Kathryn Soraiz. In *SunWorld [Online]* (March 2000). Summary: "Last moth's PHP, Python, and Tcl conferences each indicated a shift in the balance of the scripting world from technical to organizational developments. Commercial interest in scripting languages has grown considerably this winter, making it Cameron Laird's and Kathryn Soraiz's choice of topic for this installment of 'Regular Expressions'... cripting languages have gone commercial, and perhaps none has seen such a marked change as PHP, which released its beta 4 version at the end of February. PHP beta 4 includes built-in Extensible Markup Language (XML) support, and, upon final release, will include ticks, which are free-running watchdogs and exception-handlers. Perhaps the most interesting thing to note, however, is that PHP has become popular enough to warrant its own conference. A dozen top PHP engineers attended the inaugural PHP Developers' Meeting in Tel Aviv, Israel, in mid-January, and since then there have been several initiatives to heighten PHP's commercial profile. Zend Technologies has

issued a press release announcing its intention to 'offer commercial support and value-added products to the exploding PHP user base.' Internet.com acquired PHPBuilder.com in a private transaction, and at least four other well-known companies are working on PHP strategies. Several of the same people will play prominent roles at the March 2000 ApacheCon. . ."

- [March 16, 2000] "XML Compatibility: Looking For Answers." By Sarah L. Roberts-Witt. In *Inter@ctive Week [Online]* Volume 7, Number 10 (March 15, 2000), page 36. ['Talk about the potential of eXtensible Markup Language has been unceasing. Yet widespread implementation has met several hurdle.'] "Within the past few months, talk about the potential of eXtensible Markup Language has been unceasing. Yet widespread implementation has met several hurdles, not the least being compatibility among the multitudes of XML schemas or document-type definitions that have been cropping up. An expanded version of HyperText Markup Language, with more tags to identify and define elements on a page, XML holds the promise of making electronic communications between business partners quick and easy. But much depends on vendor efforts to set the various language schemas, or standards. Though several players are working feverishly to make their mark, IBM and Microsoft are the most aggressive... After a dizzying series of February announcements, Microsoft, for its part, unveiled a new version of the BizTalk Framework specification, along with a BizTalk.org Web site and a BizTalk JumpStart tool kit, to impress upon the industry its seriousness about XML. The BizTalk Framework is similar to [IBM's] tpaML in that it enables businesses in any industry to exchange baseline information about contracts, transactions and terms. In addition, Microsoft is encouraging businesses and industry groups to post their own schemas to the BizTalk.org site as OASIS has done via its XML category."

- [March 16, 2000] "Pyxie." By Sean McGrath. From XML.com. March 15, 2000. ['Pyxie is a project started by Sean McGrath which provides an alternative XML processing model to SAX or DOM. Ingeniously combining ideas from SGML with an ethos of simplicity, Pyxie has the potential to XML-enable many existing line-oriented tools.'] "Pyxie is an open source XML processing library that presents an alternative to current methods of handling XML. A central part of Pyxie is the simple, line-oriented notation it uses to describe the information communicated by an XML parser to an XML application. This notation is known as PYX. PYX is based on a concept from the SGML world known as ESIS. ESIS was popularized by James Clark's SGML parsers. (Clarks' first parser was *sgmls*, a C-based parser built on top of the *arcsgml* parser developed by Dr. Charles Goldfarb, the inventor of SGML. Then came the hugely popular *nsgmls*, which was a completely new SGML parsing application implemented in C++.) The PYX notation facilitates a useful XML processing paradigm that presents an alternative to SAX or DOM based API programming of XML documents. PYX is particularly useful for pipeline processing, in which the output of one application becomes the input to another application... In this article, we take a look at the origins and philosophy behind PYX. We then show how PYX can be combined with non-XML aware tools to do useful work with 'one-liners'." See also the main news entry for

Pyxie.

- [March 16, 2000] "Fooling with XUL." By Edd Dumbill. From XML.com. March 15, 2000. ['With the mounting excitement about Mozilla, we decided to check out the promise of the XML, DOM, and CSS in combination with the XUL user interface language.'] "For a while now we have heard and seen presentations of XUL, the Extensible User Interface Language, which forms an integral part of Mozilla. Delegates at XTech 2000 were clearly excited by the project and its promise for delivering a richer user interface on the Web. As far as buzzword-compliance goes, Mozilla boasts a host of W3C specifications, including XML, DOM, CSS, and RDF. I wanted to find out how all these bits fit together in reality, and how practical client-side development with Mozilla actually is. I attacked the problem in my favorite way, by just jumping in with an idea I wanted to implement. One of the fun parts of the Mozilla browser is the sidebar. Working in a similar way to the so-called 'Explorer' bars in Microsoft's browser, the sidebar allows for handy access to components such as bookmarks, search, and 'What's Related?'..." See references in "Extensible User Interface Language (XUL)."

- [March 16, 2000] "Painting By Numbers. [XML-Deviant.]" By Leigh Dodds. From XML.com. March 15, 2000. ['This week we take a closer look at the technical details of SVG.'] - Note that W3C's *Scalable Vector Graphics (SVG) 1.0 Specification* has entered a second 'last call' review period which ends 31-March-2000.

- [March 16, 2000] "Twenty Questions for CrossWorld's Prashant Gupta." By Rich Seeley. In *EAI Journal* (March 2000), pages 50-53. ['Prashant Gupta, senior vice president and chief technology officer for CrossWorlds Software, Inc., has been a leader in technical innovations in database and messaging technology. eAI Journal's Rich Seeley recently asked Gupta about the increasing use of the Extensible Markup Language (XML) in EAI as well as CrossWorlds' philosophy and approach to integration problems, especially as it deals with the rush to e-commerce and e-business application development.'] "XML has gotten a lot of attention, but it's only another standard for defining the format. Even if you use XML, you still have to define a customer, the customer attributes, and what the customer can do. XML is used as a format or a tool for defining what this customer is, so any other user can directly interpret that definition and use it. ... [So have you incorporated XML into your software?] Gupta: Yes, in two ways. First, we have an XML connector. If you have an XML-based system, we can read and write those XML documents. But saying that isn't enough. Somebody has to determine answers to a few questions: What's a document? What does it mean? What's the information it contains? That's the semantic-level work that has to be done..." [PDF version]

- [March 16, 2000] "Digital Dial Tone: What XML and the Web Bring to B2B. An Interview With Benoit Lheureux of GartnerGroup." By Rich Seeley. In *EAI Journal* (March 2000), pages 47-48. "At a high level, XML is about portable data, and this is comparable to Java

for portable process. That description makes it clear that XML is addressing a particular requirement, and that's the need to be able to express data -- any data -- in a manner that's portable and that can be processed by multiple applications from anybody. Now, as soon as I say from anybody, I have a very realistic view of the difficulties of integrating applications, particularly between business partners. So, while XML is a standard that's increasingly being used to express data in a portable manner, you need an agreement between business partners on certain aspects of how that data is expressed -- just like you need an agreement between business partners, for example, on Electronic Data Interchange (EDI) formats...Although there's nothing necessarily scientific to back this up, we are at the peak of hype for XML. This is a Gartner Group perspective. The peak of hype represents the peak hope that some new emerging technology's going to solve all your problems. This hope is cast under a cloud of a soon-to-be-realized reality check, when XML doesn't solve all your business problems..." [PDF version] See also: seminar: "Benoit Lheureux, Research Director for GartnerGroup, Explains How a 'Digital Dial Tone' Can Offer a Better Way for Businesses to Automate B2B Processes eBusiness is an essential requirement for success in today's fast-paced global economy. Opportunities exist to expand markets, increase efficiency, and reduce costs, based on immediate access to information. To capitalize on these opportunities, organizations are looking to automate business processes with their trading partners leveraging the predominance of the Internet and the power of XML." [Active Software, Inc.]

- [March 16, 2000] "Allaire unveils e-commerce initiative." By Wylie Wong. In *CNet News.com* (March 13, 2000). "Allaire today launched a new offensive against Microsoft and other software makers as it tries to gain a bigger share of the e-commerce software market. The software firm today announced a new product strategy it hopes will give businesses all the technology they need to build and manage e-commerce Web sites that link customers, partners and employees. . . To round out its offerings, the company in the next 12 to 18 months will also release Web systems management software that will allow businesses to monitor the health of their Web sites. Allaire also is developing an XML integration server, software that will allow companies to tie their business software together. XML, or Extensible Markup Language, is a Web standard for exchanging data. Microsoft, Oracle, Bluestone Software and others are all selling or developing XML integration servers..."

- [March 16, 2000] "Movement to Develop XML Standards for Ad Industry Picks Up Steam." By Pamela Parker. In *Web Developer News* (March 10, 2000). "Have you ever faxed an advertising insertion order or received one in an overnight delivery? If so, it's no surprise. Even though Internet advertising revolves around bits and bytes, the most crucial transactions are still often made on paper. That's why 46 industry people from 29 different companies got together in December to discuss a solution to that problem. These people, who hail from companies like Flycast Communications (FCST), DoubleClick (DCLK), Solbright, OpenGrid, and Winstar Interactive (WCII), established an organization to try to come up with digital standards for exchanging information like ad sizes, numbers of impressions, and types of ads. In recent weeks, the action at adXML.org, so named

because the XML language is central to the process, has heated up, as the group gets closer to releasing the beta version of the standard..." See references in "adXML.org: XML for Advertising."

- [March 16, 2000] "Book Review: *XML Handbook, Second Edition.*", Authors: Charles Goldfarb and Paul Prescod. By Dianne Kennedy. In *The XML Magazine* Issue 19, February 2000. "*The XML Handbook* is organized into thirteen parts (66 Chapters) and a CD-ROM. There is a significant increase in content between Revision 1 and Revision 2. Many of the latest W3C standards have been added to this second addition. Real case studies have been added... I have found the CD which accompanies *The XML Handbook* to be particularly useful. This CD contains over 125 free XML tools, plus the IBM alphaworks XML family of tools. *The XML Handbook* is a good resource for those starting with XM and even for those who have been working with XML but are struggling to keep up with the latest developments, standards, and tools. In the first and last part of the handbook, the reader can find both a general overview of XML and technical specifics of XML and related standards. The scenerios, case studies, and tool descriptions serve to make XML 'real' to the reader and to spark the imagination as to how XML might be used in the reader's own environment. Together with the wealth of resource on the CD, *The XML Handbook* is a good addition to any technical library."

- [March 16, 2000] "Making the Transition from DTDs to XML Schemas? Just Relax!" By Dianne Kennedy. In *The XML Magazine* Issue 19, February 2000. "One of the papers to be presented at XTech at the end of February focuses on RELAX (REgular LAnguage for XML). RELAX is a language for representing regular sets of XML documents as grammars. According to the presentor, Murata Makoto, A RELAX grammar generates a set of XML documents. Conversely, XML documents can be validated against a RELAX grammar. RELAX consists of RELAX core and RELAX Namespace. RELAX core provides modules, which declare and constrain elements and attributes in a single namespace." The XTech presentation will focus on RELAX core." For background and references, see REgular LAnguage description for XML (RELAX)."

- [March 16, 2000] "Seybold XML Day Highlights IDEAlliance Initiative." By Dianne Kennedy. In *The XML Magazine* Issue 19, February 2000. "The morning session focused on the role of XML in commercial publishing. During the morning session, two of the initiatives of GCA's new IDEAlliance were highlighted. First, Jay Brodsky, Director of Technology, Tribune Media Services, discussed how XML can be used to facilitate the syndiction of content on the Web. In particular, Mr. Brodsky focused on the Information and Content Exchange standard, ICE. This XML-based protocol allows for the negotiation of syndication offers, and the ongoing syndication of content among trading partners. Justin Scroggs, database manager at the research center for Time, Inc. provided information about the new IDEAlliance initiative known as Publishing Requirements for Industry Standard Metadata, or PRISM. Like ICE, PRISM is an initiative of IDEAlliance. PRISM focuses on the development of publishing industry standard XML metadata vocabularies to facilitate

syndicating, aggregating, post-processing and multi-purposing magazine, news, catalog, book and mainstream journal content. Clearly PRISM and ICE can go hand in hand..."

- [March 14, 2000] "Baylor Health Care uses a portal to link doctors and patient data." In *Corporate Portals Letter* (March 2000). "Baylor Health Care System is a major health care organization with as many as 13 hospitals and clinics located in and around the Dallas metropolitan area. The company pursued a corporate portal strategy in an effort to cut the paperwork and time involved for physicians trying to access patient data. The portal has been up and running in a pilot phase since October... XML database is part of overall WebTop corporate portal project. In addition to providing access to clinical documents, Baylor is also working on providing access to several other databases and its internal Web pages from the same browser-equipped desktop. 'This is all part of our project we're calling the WebTop,' Hayward says. 'And that went into pilot in October with 18 member physicians.' The WebTop is the true corporate portal, Hayward says. 'The WebTop lets the physician log onto a Web page and get into the XML document repository, but at the same time, he can also get to other Baylor Web sites and databases," Hayward explains. "He may want to check the database that lists all the medications we have in the pharmacy department, or he may want to see what consent forms are required for surgery. We consider the XML repository as just one information service of the WebTop corporate portal'."

- [March 14, 2000] "Oasis exec sheds light on XML's role in corporate portals." In *Corporate Portals Letter* (March 2000). ['Mikula, who is also chief technology officer at DataChannel, says OASIS members are providers, users and specialists of the technologies that make XML and these other standards work in practice. OASIS sponsors XML.org, the primary XML Web site, and a strong resource for corporate portal architects.'] "IS managers in Fortune 500 companies have seen many hypes come and go. Every day, they have vendors come in and show them the magic bullet. 'Go with us and in one week we'll solve all the IT problems you've been trying to solve for the last 30 years.' In reality, it doesn't work like that. To really unleash the power of an XML based infrastructure and portal strategy, you need to roll up your sleeves and do some work. You need to focus on building a consistent architecture that really exploits the use of XML in all levels of your IT management. XML can be used very tactically and project-oriented. But it can also be used very strategically, and that's where the biggest benefit is. You want to see how using XML will help make sure your company remains competitive two years from now. Users need to understand what their business model looks like and what their IT challenges are. Then, interactively and cooperatively, you can see how XML technology can help."

- [March 14, 2000] "DataChannel 4.0 boasts complete XML compliance." In *Corporate Portals Letter* (March 2000). "DataChannel unveiled Version 4.0 of its flagship DataChannel Server (DCS) software last month, announcing it had been completely reworked to support native XML at the server level. Using an XML backbone (see graphic, page 1), DCS 4.0 makes all of a company's legacy information available through the portal via a secure,

personalized Web interface. In addition, because all of the data is transformed into XML at the server level, it can then be targeted at a wide variety of Web-enabled devices, be they a browser-based PC, a cell phone, or even a palmtop computer. According to Steve Jones, most corporate portal vendors provide links into legacy data via two means: a plug-in approach or a dynamic transformation approach. ' With Version 4.0, we've built the entire server based on the Document Object Model (DOM) layout [which is a specification within the XML standard]. We handled XML documents before, but now we provide the actual dynamic transform to a DOM layout.' ... The product ships with fully customizable XSL templates that are similar to Internet portal sites and provide for personalized start pages and navigation. The new release adds support for multi-level folders, enabling managers to control end-user security and access down to the file level within different folders, and across folders. Previously, if users had access to a folder, they had access to all the documents within that folder."

- [March 14, 2000] "Tanyitech Systems Announces Easy XML Tool." By Scott Clark. In *Web Developer News* (March 13, 2000). "Tanyitech Systems recently released of Easy XML 1.0, a powerful editor that facilitates the rapid creation of XML applications for e-business. Easy XML enables developers to create, validate, manipulate and transform XML structures directly from ODBC data sources, including Microsoft Access, Oracle, and MS SQL Server, as well as from URLs and local files. By utilizing Easy XML, non-programmers can create XML documents 'quickly, easily, and in an iterative fashion.' This new XML tool provides a simple user interface that represents two views of the XML data. By providing both a text view and a tree view, Easy XML gives the developer the ability to make minor changes such as adding DTD/Schema, URLs and processing instruction with the text view, and use the tree view for XML document structure manipulation and transformation. By working with the standard building blocks of XML (*i.e.*, Elements, Attributes and Text), authors can create data structures which may be easily reproduced."

- [March 14, 2000] "The Grammar of XML." By Kevin Dick. In *EAI Journal* (March 2000), pages 36-39. ['The true power of XML to improve business processes comes when multiple documents all use the same data format. This is done via Document Type Definitions (DTDs) that provide the grammar for XML messages. Here is a comprehensive guide to DTDs.'] "The true power of XML to improve business processes comes when multiple documents all use the same data format. Then a single piece of software can process them all and a single screen layout can display them all. Most important, if the format is publicly available, then anyone can generate a document that can be processed by the software or displayed in the screen layout. DTDs provide these common, public data formats. A DTD is a collection of rules that specifies the allowable structure of a class of documents. A DTD serves as a format referee at two important points in the software life cycle. During the design phase, a software developer can look at a DTD and know that as long as the application he builds will output documents that conform to that DTD, other applications can process those documents. During the execution phase, the XML processor can verify that a document conforms to the DTD, so the application that processes the document knows that

it will receive only validly structured content. In essence, the DTD is a contract between the supplier of the document and the consumer. A particular XML document is said to be valid if it obeys all the rules of its parent DTD, as well as the criteria for well-formed documents. [PDF format]

- [March 14, 2000] "XML and the New Integration Frontier." By JP Morgenthal. In *EAI Journal* (March 2000), pages 26-30. ['The cover story from our March issue provides a comprehensive examination of XML and XAI (XML Application Integration), including a basic glossary and list of current industry initiatives. An indispensable guide to today's hottest e-business technology.'] "Initially, XML was described as the predecessor of HTML -- the new language of the visual interface for the Internet. Much has been written about XML since then to significantly clarify the picture, but the key to XML's strength is often overlooked. As both the EAI and e-commerce industries are now beginning to realize, it's not enough to have common syntax for messages. Real electronic communications requires a semantic understanding of the data being exchanged. That is, systems need more than to understand that price is being transmitted in a particular segment of a message, it needs a context to apply price against. In the older Electronic Data Interchange (EDI) world, this context was supplied, using relative positioning of records and groups of records. One line of a file would indicate that the next two lines represented purchase order detail, of which price would be a component. This approach works well. However, due to technological constraints, such as bandwidth and processor speeds, EDI was forced to implement this data as a series of mnemonic codes that can be misconstrued and are difficult for humans to read. Despite these shortcomings, EDI was successful as a technology for information exchange between trading partners. We can now overcome the limitations of EDI. Currently, XML is the best syntax to represent that data. It is the perfect fit because of its ability to clearly and accurately represent context -- providing semantic benefit, too. That is, XML lets us combine our data and metadata -- the semantic meaning -- in a single, encapsulated unit that's vendor- and machine-independent."

- [March 14, 2000] "Using XML with Existing Data Standards." By John Goodson. In *EAI Journal* (March 2000), pages 44-46. "By now, everyone should know that XML is all about data. Unfortunately, that's about all most people know about XML. Depending on whom you talk to, XML is projected to be the framework for replacing all software currently in existence or is seen as an interesting technology that should be watched over the next year or two. The future of XML is certainly debatable, but it's clear XML is a hot new standards-based technology for defining the interchange of data. But questions arise: (1) Aren't there already standards-based technologies for accessing data, such as Open Database Connectivity (ODBC)? (2) Will XML replace ActiveX Data Objects/Object Linking and Embedding (ADO/OLE) databases? (3) Do I use XML in conjunction with or instead of Java Database Connectivity (JDBC)? This article provides a clear understanding of how XML fits with the existing data access standards such as ODBC, JDBC, and ADO/OLE. Additionally, it explores the components that can be used to build an XML-enabled Business-to-Business (B2B) infrastructure..." [PDF]

- [March 14, 2000] "Process Automation and EAI." By David Linthicum. In *EAI Journal* (March 2000), pages 12-18. ['Process automation is going to be a part of almost all eAI solutions, although middleware has a long way to go to enable process automation to work properly. This article explores process modeling, workflow, and approaches to process automation.'] "Workflow Standards: As with any technology, process automation has a standards body working in the background to create a common approach to process automation, as well as interfaces to the technology they access to execute the workflow models. While there are a few efforts afoot, the most significant of them is the Workflow Management Collation (WfMC) (www.aiim.org/wfmc). The WfMC is a consortium of workflow/ process automation vendors that is seeking to create a common approach and mechanisms to process automation. Until now, it has focused on the models themselves. Now it is focusing more on the plumbing that actually drives the models. The WfMC is creating an Interoperability Specification (also known as 'Interface 4') to define standards requests and responses to workflow engines. This specification defines how all requests and responses are encoded and transported over the enterprise network. These standards define requests and responses as well as the inputs and outputs. In short, they define how all workflow engines must interact with external systems, as well as other workflow engines. The standards also define the functions that all workflow engines must support, and how to define the coding needed to transport the requests." [PDF]

- [March 10, 2000] "Kofax Adds XML to Capture." By Dennis Fisher. In *PCWeek [Online]* Volume 17, Number 10 (March 06, 2000), page 27. "[Kofax Ascent Capture 4.0 - a new architecture based upon XML.] The XML support enables users to write custom modules for the product, adapting them to their needs...This enhancement makes it possible for users to insert their own modules anywhere in the workflow process."

- [March 10, 2000] "VoiceXML Specification to Lead Announcements at CT Expo." By Cathleen Moore. In *InfoWorld* Volume 22, Issue 10 (March 06, 2000), page 26. "Vendors will use next week's Computer Telephony (CT) Expo in Los Angeles to showcase new applications and capabilities for voice technologies and call centers. Highlighting the continuing evolution of the telephony market will be a new standard to ease the development of voice response-based interactions on the Web. Advances in communications servers and speech-telephony software will also be demonstrated. At CT Expo, the VoiceXML Forum, which was founded in March of last year by AT&T, IBM, Lucent Technologies, and Motorola, is expected to announce that it has completed Version 1.0 of the VoiceXML specification. The VoiceXML specification was developed in an effort to make XML-based content more accessible via voice commands and phone interfaces. It is also intended to drive new voice-capable devices, appliances, and services. Several companies have already begun developing products based on the preliminary VoiceXML specification. According to one analyst, the standard may herald a radical change in the way automated telephone services are used. '[VoiceXML] can support call center-style applications in a way [that allows] people to treat automated telephone services that use speech recognition in a much more flexible way, much like they treat their Web pages,' said

William Meisel, president of TMA Associates, in Tarzana, Calif." See the main news entry, the reference page, and the VoiceXML Web site, www.voicexml.org.

- [March 10, 2000] "Standard completed for voice-activated Web browsing." By David Rohde. In *InfoWorld* (March 09, 2000). "The effort to provide voice-activated equivalents to Web hyperlinks this week took a step forward, as the VoiceXML Forum announced it has completed Version 1.0 of its specification. Last year Lucent, IBM, Motorola, and AT&T created the VoiceXML Forum. The forum is tasked with creating a high-level programming interface to speech and telephony resources for application developers, service providers, and equipment manufacturers. At the Computer Telephony Expo in Los Angeles, the forum members said the group had finished the VoiceXML specification and will now contribute it to the World Wide Web Consortium. IBM officials at the show demonstrated the use of VoiceXML with its ViaVoice speech-recognition technology, which enables users to speak equivalents of hyperlinks. They said properly trained end-users would find this faster than wading through several layers of IVR (interactive voice response) prompts on a telephone keypad, and noted that the technology could enable hands-free operation in environments such as cars with cellular phones. Call centers that are responsible for answering inquiries from Web sites might find this capability especially useful because it would cut down on the amount of time end-users chew up on IVR systems requesting information, said Anne-Marie Derouault, director of strategy and alliances for IBM's Voice Systems unit. Integration with back-office systems, integration with traditional Web-access methods, and getting end-users accustomed to speech-activating Web sessions are among the challenges the vendors will likely face before such technology is widely employed. . ."

- [March 10, 2000] "Namespace Myths Exploded." By Ronald Bourret. From XML.com. March 06, 2000. ['Published over a year ago, the "Namespaces in XML" recommendation may only be a small specification, but it's caused more than its fair share of confusion.'] "The XML namespaces recommendation is tantalizingly vague about, or omits altogether, a number of apparently important points. In practice, this is not a problem -- the points are not actually important and the recommendation does what it was designed to do: provide a two-part naming system for element types and attributes. Thus, as long as you don't look too deeply, XML namespaces do their job and do it reasonably well. Of course, many people have looked too deeply. Programmers are curious people and the close link between traditional namespaces and identifiers, as well as the perceived link between XML namespaces and schemas, has naturally invited closer inspection. So too has the fact that the XML namespaces recommendation introduces a new naming system, but does not discuss validation or how to declare XML namespaces in DTDs. Equally inviting is the fact that it discusses the structure of XML namespaces, but in a non-normative appendix. The result has been confusion and controversy. This article discusses a number of myths that have arisen around XML namespaces, examining possible sources, clarifying what the recommendation says about them, and pointing out ways to resolve the issues they raise. It is hoped that this will help clear up some of the confusion about XML namespaces, as well as reinforcing the point that most of that confusion revolves around things not required to

use XML namespaces as they were designed -- that is, as a two-part naming system for element types and attributes." For background and references, see "Namespaces in XML."

- [March 10, 2000] "A Preview of XMetaL 2.0." By Liora Alschuler. From XML.com. March 06, 2000. ['Last week at XTech 2000, SoftQuad demonstrated a preview of the next release of their XMetaL XML editor. Liora Alschuler reports on what to expect in XMetaL 2.0.'] "In a conference mercifully free of product pitches and thinly veiled marketing spiel, SoftQuad Software, Inc. was given the green light to sneak preview the next of generation XMetaL, the document and data editor for XML, SGML, and HTML. What Lauren Wood, Director of Product Technology, showed was real code, but "pre-alpha." That means software that is still under development, with a softer than "carved-in-stone" feature set. Still, the additions and enhancements show serious development over release 1.0, which shipped in May of 1999. XMetaL 2.0 will support auto-numbering and CSS tables, extending support to most of the W3C's CSS1. CSS tables mean that users can use real, rich, XML markup such as <catalogNumber> and <item>, and present the information in tabular form. This cuts one of the last strong bonds with non-extensible document markup languages, which force procedural markup (*e.g.*, <td>) on information displayed in neat rows and columns. The CSS tables support basic GUI editing, but won't have all of the features of HTML tables, where presentation is hard-wired into markup. You can hit 'Tab' at the end of the last cell and a new row will be added. Merging and dividing cells is not supported. In effect, providing a standards-compliant method to layer formatting on semantic markup means that information can be imported from and exported to databases without loss of markup 'intelligence.' It has long been an anomaly of SGML and XML implementations that the information most tractable from a machine-processing standpoint was dumbed down to row/column markup for human consumption. Hopefully, we can all now go about our business without further brouhaha on the separation of content and presentation for tabular material..."

- [March 10, 2000] "XTech 2000 Conference Reports." By Edd Dumbill. From XML.com. March 06, 2000. ['XML.com reports from XTech 2000, the XML developer's conference held from February 26 - March 2 in San Jose, California. News from the tutorials, conference sessions and keynotes.'] "XTech 2000, held from 26th February to 2nd March 2000, was an incredibly packed week created especially for XML developers. XTech 2000 kicked off with two days of tutorials, covering both the latest specifications (such as XLink) and the latest software technologies. Editors of specs, book authors, and software developers gave quality instruction -- straight from the cutting edge of XML technology. The tutorials were followed by three days of presentations and two 'Town Hall' meetings, in which W3C working group members were quizzed by the audience."

- [March 10, 2000] "Style Matters: What Place Has CSS in the XML World." By Didier Martin. From XML.com. March 06, 2000. ['What practical use is CSS today to the XML developer? How does it integrate with XSLT? Didier Martin shows us where CSS fits in with the XML family of languages.'] "Is CSS a good style language to use with XML? Is CSS an

alternative to XSLT? You have probably heard these questions before. You may have even asked them yourself. Debates about the virtues and value of various style sheet languages have tended to increase the confusion. In this article we'll explore the application of CSS to XML."

- [March 10, 2000] "B-To-B Hard to Spell with XML. E-commerce growth may stall before disparate efforts yield concrete standards." By Carol Sliwa and Julia King. In *Computer World* Volume 34, Number 9 (February 28, 2000), pages 1, 97. "Forget the multibillion-dollar market forecasts. For now, business-to-business e-commerce remains in search of a common framework to help companies efficiently execute transactions over the Internet. The promise lies in Extensible Markup Language, or XML, which companies can use to categorize and tag data for exchange between disparate technology systems. But reality bites. Corporate users must sift through an alphabet soup of technology frameworks and data definitions being worked on by sometimes competing clusters of standards and industry groups and vendors, with little chance of an electronic Esperanto surfacing anytime soon. E-Steel, for example, is working on the Steel Markup Language to enable the industry's buyers and sellers to exchange product and order information. Costello said he thinks that as individual vertical working groups come up with XML formats, they will borrow from one another. That has already happened with the insurance industry's standards-setting body, the Association for Cooperative Operations Research and Development (ACORD) in Pearl River, N.Y. Where it made sense, ACORD's property and casualty division adopted the XML-based framework developed by the Interactive Financial Exchange, the online financial service industry's standards group, said ACORD director Beth Grossman. 'We thought there would be a lot of synergies,' she said. Seeking to prevent fragmentation and move quickly, ACORD's property and casualty group used established formats wherever possible, reworking electronic data interchange standards to develop its dictionary of data tags. Yet despite their best efforts, that's not going to solve every problem. 'There are a lot of vertical industries out there like finance and insurance and health care that are related. But they're having XML initiatives driven out of separate verticals, and there's no horizontal standards effort to pull all those together,' said Kevin Schipani, a group manager at ACORD. As a result, there's much duplication of effort across the various industry-based standards groups, said Nick Lanyon, who chairs a working group within the OpenTravel Alliance in Washington, which will soon publish its first XML standard, a customer profile format, for the travel industry. . ."

- [March 10, 2000] "Sticking With XML: Tying Disparate Systems Together." By Mark McFadden. In *ent - The Independent Newspaper for Windows NT Enterprise Computing [Online]* Volume 5, Number 3 (February 23, 2000), pages 16-17. "To understand how business-to-business e-commerce has been transformed by XML, it's important to understand why its ubiquitous predecessor, HTML, wasn't up to the task... XML provides a standard, vendor-neutral way for both data and accompanying metadata to move over a network. This makes it possible for two companies to exchange information without having to understand anything about the underlying databases or information sources. To

communicate, a source system simply reformats its proprietary information as an XML-compliant document. The system sends that document to any other system or application that can understand XML... As XML becomes accepted as a standard, vendor-neutral approach for business-to-business communications, one issue will rise in importance: a standard definition of the tags and attributes used for business applications. Many industry sectors are banding together to build industry-specific XML language definitions, or schemas. The W3C has made it clear that while it is interested in seeing XML widely deployed, it does not want to get into the business of setting standards for specific industries. The result is a plethora of industry organizations and standards bodies that are trying to build momentum for their own XML schemas. Some industries have been successful in defining XML schemas. For example, Rosettanet is an initiative by more than 30 companies in the personal computing industry to define an XML schema that defines all the properties of a personal computer. Rosettanet, which includes manufacturers such as Compaq Computer Corp., Hewlett-Packard Co., and Intel Corp., defines a common business language that can link the entire PC industry's supply chain..."

- [March 10, 2000] "Bowstreet To Introduce New XML Wares." By David Drucker. In *InternetWeek* (March 09, 2000), page 8. "XML is beginning to let companies share information more dynamically by replacing hard-coded applications with Web services accessed on the fly. Bowstreet will further those efforts next week with a new software suite and a site through which companies and developers can offer and shop for XML services. The software includes Business Web Factory 2.0, formerly named Web Automation Factory, which boasts faster performance, more development tools, Linux support and the ability to translate Web services to support wireless devices. Business Web Factory takes information about business processes from back-end systems and translates it into XML documents that are published to a directory. Companies create templates that assemble the XML data along with user data from corporate directories to create customized Web pages that take advantage of the XML services. . ." See now: "Bowstreet Ignites Business Web Revolution. Companies will grow their business online in ways they've never dreamed, exponentially expanding the number and scope of their B2B relationships."

- [March 10, 2000] "Bank to launch Web-based foreign exchange service." By Maria Trombly. In *Computer World* (March 08, 2000). "Next week, international customers of London-based Barclays PLC will be able to trade currencies online, with foreign customers of discount broker Charles Schwab Corp. not far behind. Barclays was able to develop the system in four months, instead of the 9- to 12-month development cycle normally needed, since it was developed entirely using Java and XML-based technologies.[...] The aim of the FX facility will be to allow investors using Schwab's online brokerage services to buy and sell securities in different foreign markets without the need for separately negotiated foreign exchange contracts. In addition, in countries where Schwab's affiliates are licensed to trade on local exchanges, the FX facility will enable customers to promptly move funds between accounts denominated in different currencies. Barclays Capital, the investment banking division of the Barclays Group, will provide the live foreign exchange pricing and execute

the foreign exchange transactions with Schwab. Schwab's web interface will relay relevant exchange rate information to customers and process the foreign exchange transaction automatically in parallel with the securities trade."

- [March 09, 2000] "Lore: A Database Management System for XML. [INTERNET PROGRAMMING.]" By Roy Goldman, Jason McHugh, and Jennifer Widom. In *Dr. Dobb's Journal* Volume 25, Issue 4 [#311] (April 2000), pages 76-80. ['Lore is a DBMS designed specifically for XML. In the same way that SQL queries relational DBMSs, Lore provides the query language Lorel for issuing expressive queries over XML data. Additional resources include 'lore.txt' listings.'] For publications and software, see the Lore Web site. For related research on query languages, see "XML and Query Languages."

- [March 07, 2000] "XHTML: The Best of Two Languages? [COVER FEATURE.]" By Don Kiely. In *XML Magazine* Volume 1, Number 2 (Spring 2000). ['The W3C's Web technology combines the formatting strengths of HTML and the markup strengths of XML. A stopgap solution, or an insightful blend of two effective technologies?'] "While HTML has been going through these growing pains, XML has burst on the scene. At first, while people were still trying to grasp XML's implications, it was called an HTML-killer, but it quickly became apparent that it was anything but. It is marvelous for marking up data for exchange, and used as XML islands within Web pages. XML is most powerful when combined with XSL styles, but even this combination is typically used to generate standard HTML for use in a browser. But the best part of XML is the X in the acronym. It stands for extensible, and means that you can create whatever tags you need to describe data. This flexibility hearkens back to its roots in SGML, a well-established, mature markup language that is also mind-numbingly complex. HTML has these same roots, but was never designed to be extensible. So in a move to create a much more flexible Web markup language, the World Wide Web Consortium has published a recommendation for putting these two great tastes together: Called XHTML (Extensible Hypertext Markup Language), it's exactly what you'd expect from the name and heritage -- a language that uses XML's Document Type Definitions (DTDs) to make for conforming document definitions. (A W3C recommendation is the final step in becoming an official specification, and you're safe to start implementing it.) Somewhat predictably, XHTML is viewed by some as a stopgap measure in the inevitable movement from HTML to XML as the markup language of the Web. I think this view is short-sighted. The features of each technology have different focuses: HTML's focus is on formatting information, and XML's focus is on marking up information. XHTML makes the best of both technologies."

- [March 07, 2000] "What XLink Can Do For Your Applications." By Bob DuCharme. In *XML Magazine* Volume 1, Number 2 (Spring 2000). ['Ever wonder if there was a way to link multiple documents in multiple formats without having to alter them?'] "For XLink purposes, a link is an explicit relationship between two or more resources or portions of resources. Here's what we can infer: (1) We're not necessarily linking documents, but resources. This means more than documents; it means sound and movie files, information retrieved from

databases, and information formats not even invented yet. (2) We can link two or more resources. A single link can link three resources, four resources, or as many resources as you want. (3) A link is "an explicit relationship" -- whatever relationship you want to specify. Your link can say "this resource here is the origin of a hypertext link to that resource over there," like HTML's A element does, or it can specify more complex relationships. An XLink link does this by offering several new categories of information that you can add, as well as letting you declare your own attributes and subelements for your linking elements. For example, they can name the date the relationship was established or the date it will expire, identify a category the link belongs to, restrict the role of certain resources taking part in the link, or offer clues about how applications should represent the relationship. The purpose of XLink is not to indicate where you want hyperlinking behavior applied to your data, but to encode complex relationships so apps can best use them to their advantage. Don't think about XML in terms of assigning italic and bold attributes. Think about it in terms of indicating which text strings serve what roles, like keywords and section heads, for example, so that each browser or publishing package can interpret these appropriately for its platform. XLink's avoidance of implementation-specific details lets us store a new class of information -- resource relationships -- in a format that can easily serve whatever implementations we have. While Internet Explorer 6.0 and Netscape Navigator 6.0 will undoubtedly have built-in XLink widgets to implement all the features of extended links, we'll still be able to take advantage of the same linking information on the more primitive browsers that we'll have in our cell phones. We'll just convert the XLink markup to whatever markup or coding the device can understand using an XML conversion tool such as XSLT. Adding information about resource relationships adds value to your data, and XLink lets you do this in a way that can be exploited on current and future publishing platforms. Confusion over how to represent these relationships in applications is natural, but unexplored territory is a land of opportunity for innovators."

- [March 07, 2000] "ArchitectureX: Designing for XML." By Kurt Cagle. In *XML Magazine* Volume 1, Number 2 (Spring 2000). ['An explosion of industry schemas and the rise of XSL give the "HTML killer" a boost'] "The question is, 'Why is XML so important to our organization, and how can it be leveraged profitably?' Paradigm shifts have periodically changed the computing industry, and consequently the way that people use computers. In the 1970s, PCs were largely toys, until people realized that they could be used to create, store, and -- most importantly -- edit documents, and that these documents could extend from simple pages to ledger sheets, in the form of spreadsheets. Documents could be made more quickly, enhancing communication flow. [...] XML architectures can also enable voice-controlled computer systems over cell phones, possibly tied into conferencing and data retrieval. You're already seeing the seeds of this with such standards as VoxML, which uses voice-recognition systems to encode the content of telephone conversations, and the W3C is considering a number of voice-recognition and voice-production standards. Place a series of XSL filters that interpret XHTML into VoxML for production, place other XSL filters between the microphone's VoxML producer and the Internet, and you can surf the Web, transcribe memos to a word processor, and get an alarm when your stocks dip too low -- all

while sitting in a Seattle traffic jam. Most of these scenarios are possible now. The core standards -- XML, XSL-Transformation, XML Schema, X-Link, are all either completed or likely to be completed within the next couple of months. Already the number of industry schemas is exploding, although many of these will eventually be weeded out. Much of the movement of XML will be in the background, though with current developments by all of the major server vendors it's likely that within two years almost all HTML generation will be through XML, and within five that all viable browsers (including your television set, cell-phone, and stereo) and editors will be completely XML-enabled. By moving away from the notion that XML is "simply" a data file format and seeing it as a mechanism to move information in a completely vendor neutral fashion, you'll be able to start designing powerful distributed systems, applications, and devices best suited to the 21st century."

- [March 07, 2000] "Talking the Language of E-Business." By Kent Brown. In *XML Magazine* Volume 1, Number 2 (Spring 2000). ['BizTalk can make application integration and e-commerce work on a global scale. And Microsoft's shrewd support of XML doesn't hurt.'] "There are three prongs to Microsoft's BizTalk initiative: the BizTalk Framework, the BizTalk schema library, and the BizTalk Server. The BizTalk Framework is a set of XML formatting rules and mandated tags to which every message must conform in order to be considered a BizTalk message. The library is a repository of published schemas submitted by participating companies, which is maintained on the www.biztalk.org site so that the schema for any BizTalk message is universally accessible. The BizTalk Server is a promised software product that will allow centralized configuration of the routing of messages and the translation between different schemas. Microsoft has already delivered the BizTalk JumpStart kit, which lets you convert your apps to use BizTalk messages. Then they'll work with the BizTalk Server once it's released. BizTalk is the latest wrinkle in the world of message-oriented middleware (MOM), which has long been seen as the one of the best solutions to EAI's many problems. Message-based communications let you couple apps loosely. That means the consumer of a service doesn't need to know much about the server providing the service. It all works as long as the message can be delivered to the server, and the server can interpret and act on the message, then send a response to the sender. Today's EAI solutions typically use messaging in some form. But the lack of a universal message format has limited MOM's reach. Without a standard formatting and parsing technology, either the sender and receiver must agree on the format (which isn't true loose coupling), or you must write a custom wrapper layer to translate messages from the client app's format into the server app's expected format. XML is solving these problems. It supports complex information structuring, and it enjoys broad support as a formatting/parsing scheme. Using XML as a universal format for all messages sent between apps eliminates another detail that the authors of the client app would otherwise need to know about the server app. If all apps used XML to format their messages, they could all parse each other's messages..."

- [March 07, 2000] "Get a JumpStart on BizTalk Server." By Steve Gillmor. In *XML Magazine* Volume 1, Number 2 (Spring 2000). ['No need to wait for BizTalk Server - Microsoft's

BizTalk JumpStart Kit and other XML resources help you use BizTalk Framework today.']
"If you want to link applications with XML today, you'll be hard-pressed to find a faster,
easier way than with Microsoft's BizTalk JumpStart Kit. It will reduce paradigm shift
paralysis as well asgive you a smooth transition to using BizTalk Server when it ships. All
this does not necessarily represent Microsoft's leadership in the XML revolution. Perhaps
Bill Gates is simply the master of "If you see a change coming, lead it." At any rate, when
Microsoft finally ships Windows 2000, it will have to share the stage with XML, another core
platform technology that has grown from programmers' infatuation and media buzzword to
the lingua franca of every new Microsoft product. Starting with Internet Explorer 5 and
Office 2000, Microsoft has commandeered XML as a jack-of-all-trades, to add
programmable access to Web-based data and speed interchange between Office
applications and browser clients. Windows 2000-dependent Back Office servers have shiny
XML tags dangling from new beta and preview releases. Exchange 2000 Server uses XML
behind the scenes to manage message and document metadata via URL access to the
Web Store. The SQL Server XML Technology Preview employs an Internet Information
Server (IIS) ISAPI extension that lets you send queries directly to SQL Server 7.0 via a
URL, with the results coming back as XML-formatted documents. The Win2K version of
SNA Server, code-named Babylon Integration Server, features the XML Transaction
Integrator (XML-TI), an XML interface to COMTI components for accessing IBM
mainframes, AS/400, and Unix. XML-TI consists of a runtime proxy and a component
builder that generates an XML document interface for executing legacy CICS and IMS
transactions. This lets developers invoke transactions on a host with XML without changing
existing host code or writing new code."


- [March 07, 2000] "XML Empowers Data Access APIs." By John Goodson. In *XML
  Magazine* Volume 1, Number 2 (Spring 2000). ['Combining the markup language with
  ODBC, JDBC, or ADO/OLE DB creates a powerful nucleus for Web-based applications.']
  now, everyone knows that Extensible Markup Language (XML) is all about data.
  Unfortunately, that's about all most people know about XML. Depending on whom you talk
  to, XML is projected to be the framework for replacing all software currently in existence, or
  is seen as an interesting technology that should be watched over the next year or two. The
  future of XML is certainly debatable, but it is clear that XML is a "hot" new standards-based
  technology for defining the interchange of data. But wait. Aren't there already standards-
  based technologies for accessing data, such as ODBC? Will XML replace ADO/OLE DB?
  Do I use XML in conjunction with or instead of JDBC? This article will provide you with a
  clear understanding of how XML fits with the existing data access standards such as
  ODBC, JDBC, and ADO/OLE DB. Additionally, we'll look at the components that can be
  used to build an XML-enabled business-to-business infrastructure. First, let's briefly review
  the existing standards-based data access specifications: ODBC, JDBC, and ADO/OLE DB.
  (1) ODBC (Open Database Connectivity) is an application programming interface for
  accessing tabular data using Structured Query Language. It is based on Call-Level
  Interface specifications for database APIs from the X/Open SQL Access Group and
  ISO/IEC. ODBC is a mature, cross-platform solution that's robust, flexible, and widely

accepted in the industry... (2) JDBC (Java Database Connectivity) is also an API, based on specifications from X/Open and ISO/IEC, that accesses tabular data using SQL. JDBC is tailored for the Java programming language and fits applications written in Java that access data... (3) Microsoft ActiveX Data Objects (ADO) is a high-level, object-oriented API that applications can use to access all types of data on the Microsoft Windows platform. ADO provides an interface to OLE DB, a low-level API, which provides the underlying access to backend data stores. ADO/OLE DB does not require SQL to access data... How does XML fit? . . .

- [March 07, 2000] "Use XML To Transfer Data with Regular Expressions." By Jeffrey P. McManus. In *XML Magazine* Volume 1, Number 2 (Spring 2000). ['Learn to display, transfer, and customize your data with XML.'] "Extensible Markup Language is the natural choice as the mode of data transfer for this application. XML is an open Internet specification, so other developers don't have to learn a proprietary API when they want to customize the look and behavior of the data. Equally important, most vendors who handle data involve themselves with XML in some way (including Microsoft). In this article, I'll show off some tips and tricks I've learned while working on this project. First, you don't need Internet Explorer 5.0 to use the Microsoft XML parser COM component. You can download and install the component from the Microsoft XML site at msdn.microsoft.com/downloads/tools/xmlparser/xmlparser.asp. (If you already have IE5, don't bother -- the download won't install. This free, redistributable component is designed for machines that need the XML component but don't already have IE5 installed.) Although Microsoft makes some extensions to the proposed XML Internet standard, these extensions don't affect the way the XML data is stored or parsed -- just because you're using the Microsoft XML parser doesn't mean your stuff won't work with non-Microsoft browsers. . ."

- [March 07, 2000] "XML Tools for Building E-Business." By James Bean. In *XML Magazine* Volume 1, Number 2 (Spring 2000). ['Low-cost XML creation devices may not fit every need, but they beat resorting to Notepad or VI.'] "Why is XML important to enterprise application architects? It's becoming the de facto standard for exchanging information in all segments of the application space. It can provide a flexible and extensible method for defining the message content that acts as the glue to support communication and messaging among applications of all types. But before you jump into the XML pool, you'll need a simple and preferably abstract method of designing these inter-application messages. Even though the XML specification was derived with both simplicity and extensive capability in mind, it can still be confusing. Additionally, XML or not, the exchange of information often involves detail and baggage. Trying to address the granular technology issues of information exchange, APIs, and messages can quickly erode your enterprise vision, and bury you in detail. However, the design and prototyping of XML message schemes can go a long way in building effective enterprise application integration solutions. If your roots are also in design and modeling, you are familiar with powerful tools such as Rational Rose, PowerDesigner, and ERwin -- and are probably comfortable with their functionality and the benefits they provide. You can draw a picture, abstract, prototype,

refine, and generate solutions."

- [March 07, 2000] "Compose Java Objects with XML at Run-Time." By Sergey Kalinichenko. In *XML Magazine* Volume 1, Number 2 (Spring 2000). ['Compose and rearrange your objects without recompiling, simply by changing the XML definition.'] "Every design with classes that allows nested composition must answer the same question: *Where is this composition defined?* Very often it is in the program. You simply hard-code calls to constructors and add/set methods to build the desired graph. In other cases, the composition comes from some sort of a configuration file or registry. In that case, build a program that makes sense of what's inside the file or registry and builds the graph. This approach to composing Java objects using XML and Java Reflection APIs builds a program to interpret an XML document as a series of calls to constructors and get/add methods of the objects being constructed. You feed this interpreter an XML definition, and it composes your objects for you. When you need to rearrange your objects, change the XML definition and rerun the interpreter. No recompiling is required, not even when you add or modify the classes of which you compose your objects; all you need to do is reflect your change in the XML definition. This technique may often come in handy. A server can send XML definitions of GUI frames to an extra-thin client, which interprets them to build screen objects. When the server-side definitions change, end users see them without having to download any new client code. . ."

- [March 07, 2000] "The ABC's of XML. A Status Report on a Technology that's Transforming the Web." By James C. Luh. In *Internet Week* March 01, 2000. "You can scarcely attend an industry conference or read a product brochure these days without hearing about XML. Still, while many recognize XML's potential for turbocharging business integration and data exchange, technologists and business customers are just beginning to understand what the buzzwords mean, and where XML can and can't be used. One area of great excitement-but not a great deal of agreement-is distributed computing over XML. An XML-based middleware protocol could let applications access distributed objects across the Web, or serve as an integration layer linking applications based on competing technologies, such as Microsoft's COM (Component Object Model) or the Object Management Group's CORBA (Common Object Request Broker Architecture). XML's suitability for inter-application communication derives from its flexibility. XML, the World Wide Web Consortium's eXtensible Markup Language, provides a versatile framework for creating specialized HTML-like languages that can be used for applications other than Web pages. XML 'vocabularies' allow data to be precisely marked so a computer can read and identify specific data in a document and interpret their significance. That means, for example, that disparate computer systems can exchange and process XML-formatted purchase orders and invoices with little intervention by humans."

- [March 07, 2000] "Novell exposes GroupWise. XML opens messaging system to better data integration." By Dennis Fisher. In *PC Week Online* (March 6, 2000). "Novell Inc. is taking steps to open its GroupWise messaging platform to more users, more applications

and more data. For starters, the next version of the Provo, Utah, company's software has integrated support for XML (Extensible Markup Language), allowing better integration of outside products and services. The new release, code-named BulletProof and due in the second half of the year, is characterized by officials as a 'major' overhaul, exposing the entire back end of GroupWise and its APIs. 'We introduced the XML architecture so that the third-party developers would be able to get to the product from both the server and client sides,' said Leif Pedersen, director of product management for directories and applications at Novell. And though a beta version won't ship until summer, users are already encouraged by such enhancements as XML support."

- [March 06, 2000] "GE Information Services Rorganizes in E-commerce Push." By Mark Leon. In *InfoWorld* (March 06, 2000). "General Electric, Thomas Edison's 20th century company that brought electricity to America, now wants to bring e-commerce to the world. With that in mind, General Electric Information Services (GEIS) announced here Monday that the organization will split into two new companies: GE Systems Services and GE Global Exchange Services. The new companies will get a sizable investment from GE. GE Global Exchange Services will focus on Internet Data Exchange, Enterprise Application Integration, procurement software and services, and trading partner exchanges. It will inherit the large trading network consisting of more than 100,000 trading partners currently operated by GEIS." [...] Harvey Seegers, president and CEO of GEIS, "announced a new, Java based, object-oriented architecture for business-to-business e-commerce called ICA (Internet Component Architecture). Trade Fusion, a new service built on ICA, includes a business-to-business translation engine, real-time transaction support, and native support for XML. Standards for formats such as XML remain a problem in business-to-business e-commerce. During a panel discussion prior to the announcement by Seegers here Monday members voiced their concerns. 'There are still over 200 versions of XML,' said N. Arthur Smith, president and CEO of the Electronic Commerce Council of Canada. 'If we can't address concerns such as these, electronic commerce will just mean that we send more garbage faster over the Internet.' There was widespread agreement, however, that if these problems can be solved the promise of e-commerce is real."

- [March 06, 2000] "Information at Your Fingertips. DataChannel Server 4.0." By Todd Coopee (InfoWorld Test Center). In *InfoWorld* Volume 22, Issue 10 (March 06, 2000), page 49. ['By creating a single, easy-to-use repository of information from a wide variety of data sources, DataChannel Server 4.0 enables enterprise users to make fully informed business decisions. DataChannel Server 4.0 provides access to heterogeneous data sources and application files via a personalizable Web interface. Users can access, publish, and collaborate on documents using only a Web browser.'] "Until recently, the concept of an EIP (enterprise information portal) invoked an image of a complicated mesh of heterogeneous systems, middleware development tools, report writers, information repositories, and data conversion routines. Even when a single point of access to enterprisewide information resources could be created, access to corporate data was usually reserved for a chosen few within the organization and often required extensive training. With the arrival of XML,

however, the promise of a widely accessible and easy-to-use entryway to corporate information is being fulfilled. By leveraging an XML backbone, DataChannel Server (DCS) 4.0 (formerly DataChannel Rio) from DataChannel gathers and organizes data, application files, and links located throughout your enterprise and presents them to users via a single Web-based interface. By abstracting information from its source, DCS 4.0 can be accessed via a variety of methods, including wireless products, such as PDAs (personal digital assistants) and Internet-enabled cellular phones, as well as standard Web browsers. DCS 4.0 serves the same purpose as the enterprise portal solutions from Brio Technology, Plumtree Software, and Verano that we tested in our Nov. 22, 1999, Test Center Comparison. However, the use of XML makes DCS an effective means not only of centralizing access to disparate data sources, but also of exchanging information with business partners or integrating data from multiple systems. Via XML, DCS provides an easier, more cost-effective way to integrate enterprise applications than EDI (electronic data interchange) or custom integration solutions." [local archive copy]

- [March 03, 2000] "Syntax-Neutral Definition of Business Semantics." By Martin Bryan (The SGML Centre). "This paper suggests a syntax-neutral way for describing the component parts of electronic messages designed for business-to-business data interchange, and the processes that are used to create and utilize such messages... To set the scene, the paper starts with a restatement of the purpose of messages within business processes, and the way in which messages inter-relate... For the purposes of this paper a business information message can be thought to consist of a number of named information units which contain data that is being transferred between systems. A named group of related information units that provides the information needed to answer a question is called an information set... So far we have mostly considered the naming of information objects, rather than with defining their specific meaning. However, without a formal definition of what a name means it cannot be safely used in messages being moved between environments, particularly between multilingual environments... Figure 4 shows, in a simplified form, the structure of a ISO 11179 data element definition. [...] What does this tell us? Concepts, which are described using class definitions, are the ISO 11179 equivalent of process and subprocesses. The individual properties of the class are, unfortunately, seen in a more traditional computer programming sense, which looks at name/value pairs, rather than the 'bag' of data units that form an information set. Representation and meaning are more typically, in an 11179 based semantic repository, used to define the meaning of a particular value of a property of the class. [How to represent these information sets:] This section suggests ways of representing the information required to generate an Information Message using extensions to the techniques defined in ISO/IEC 11179 and ISO/IEC 15452 which can be encoded using XML that conforms to a set of DTDs..."

- [March 03, 2000] "The role of attributes in context determinancy." By Martin Bryan (The SGML Centre). "One of the most commonly asked questions in the SGML/XML world relates to when you should use attributes rather than elements to store data. This paper suggests that one of the primary reasons for using attributes should be the need to control

the contexts in which elements are processed." See also the HTML version. OpEd: Note (1) the recent posting of Henry S. Thompson (W3C 'XML Schema: Structures' Chief Editor; HCRC Language Technology Group, University of Edinburgh) on 'structured attributes'. "*Why* structured attributes? [...] There are a lot of contexts in which the first two properties of attributes are desireable [unordered, unique], but the third [unstructured] is a serious constraint. Here's a design sketch for adding structured attributes..." Many have observed that the SGML/XML notion of "Attribute" is broken at this juncture. That brokenness, in part, is what gives rise to the constant confusion about whether to use elements or attributes. Attribute values *are* often complex: they are elements/Objects, either "owned/contained" or referenced. They are not simply flat strings, but in cases where they are complex, we have no alternative but to model the Attribute using an SGML/XML element. Some Attributes can be modelled in XML markup as attributes and some cannot: that's the problem. (2) "When Should I Use Elements, and When Should I Use Attributes?". This is a collection of references.

- [March 03, 2000] "XML environment aids network code development." By Bernard Cole. In *Electronic Engineering Times [Online]* Issue 1102 (February 28, 2000). "In many ways, engineers and programmers, especially those working in the embedded and Internet space, are like the average mechanic. If they have a job to do and they don't own the right tool, they will look around for the next best option and figure out a way to use it to get the job done. According to John Bono, engineering director at BSquare Inc., some developers believe Java still has too much overhead for many of their performance and memory-constrained applications. What they are looking to as an alternative tool is the Extensible Markup Language (XML). [Standardized content:] Bono said XML emerged from a desire to change the Internet's HyperText Markup Language (HTML) to separate the data content of a Web page from the display formatting of that page. XML standardizes the data content format, while other technologies deal with the layout format. In XML, usually written in Unicode or ASCII, elements are specified with leading and trailing tags of the element's name, with the element value contained between the tags. XML itself does not define the element names. That is left up to the implementers of the higher-level protocols. However, Bono said, it was soon discovered that XML is applicable to more than just Web pages, due precisely to the fact that it does separate data content from the underlying message format. To help developers in the Windows CE environment, BSquare will introduce a Windows CE tool kit called CE XMLKit this week at the Embedded Systems Conference in Chicago. CE XMLKit contains an XML parser, a generator and an abstracted transport COM class. These utilities, Bono said, may be used to produce any XML-based protocol such as Universal Plug and Play or Wireless Access Protocol." See also: "BSQUARE Introduces World's First XML-based Remote Update Software For Windows CE-based Devices. Powerful software enables Windows CE devices to 'phone home' for software updates anytime, anywhere."

- [March 03, 2000] "XML Namespaces FAQ." By Ronald Bourret. As referenced on XML-L: "I am pleased to announce an XML namespaces FAQ is now available... In addition to the

usual details, this FAQ discusses subjects such as how namespaces are used when combining two documents, how to write documents that are both valid and namespace-compliant, and how to write namespace-aware SAX and DOM applications. Please send comments, complaints, corrections, and suggestions directly to me at: rpbourret@hotmail.com". [local archive copy, 2000-03-01] See the reference document: "Namespaces in XML."

- [March 03, 2000] "When XML Gets Ugly." By Simon St. Laurent. From XML.com (XTech). March 03, 2000. ['What are the consequences for security of a Web full of XML? Program Co-chair David Megginson used his keynote speech at XTech 2000 to focus on these issues.'] "In the earliest phase of attacks, Megginson described ways to use cascading style sheets to vandalize sites which depend on them. Because it's easy to reuse style sheets stored on systems outside the direct control of the user, modifications made to 'master' style sheets can have widespread consequences. The whiteout attack can make words disappear in critical locations, while vandalism attacks can deface or distort the content of a site. . . After analyzing the weaknesses of style sheet referencing, Megginson moved on to a field where external resources are used much more regularly: external DTDs. The entity lists and DTDs for XHTML 1.0, for instance, are likely to be a commonly used set of information. Many developers will use and trust them, few of whom will know much about the level of security on the W3C's servers, or on any similarly trusted repository..."

- [March 03, 2000] "XML With Style: eBooks and XSL-FOs." By Simon St. Laurent. From XML.com (XTech). March 03, 2000. "Although the XSL specification is still in development, some implementations for XSL Formatting Objects are emerging. Two new projects demonstrated at XTech 2000 use XSL to present XML content with sophisticated formatting. (1) Yomu describes XSL and XML for Electronic Book Publishing The XML family of standards provides the foundation for Yomu's Æsop electronic book browser technology. Integrating XML, XSL, XSLT, XLink, and Cascading Style Sheets, Æsop implements the Open eBook (OEB) Specification. Readers can explore and annotate books in the Æsop browser, which Yomu will be making freely available. (2) RenderX demonstrates XSL Formatting Objects Rendering. RenderX was demonstrating its commercial FO2PDF formatting objects rendering engine on the exposition floor. David Tolpin, product manager, described this technology as "the missing link in a chain of technology from XML repositories to final media presentation."

- [March 03, 2000] "Inclusion, Entities, XLink, and XML Evolution." By Bob DuCharme. In <TAG> Newsletter Volume 14, Number 1 (January 2000), pages 1-3. "On November 23, 1999, the W3C Note 'XML Inclusion Proposal (XInclude)' was published on the W3C web site at http://www.w3.org/TR/xinclude. Several XML news sites briefly mentioned the new document, but I saw no discussion of its importance on any of these sites or the XML mailing list or comp.text.xml. I think it's very important, but first, let's look at the history leading up to it. . . Some argue that the XLink spec offers the best way to identify documents to include as subdocuments, but this asks XLink to do a job that it intentionally

avoids. Although the XInclude spec was created as part of the W3C XML Linking Working Group's activity, it's a separate spec for a reason. As it tells us, "Inclusion features [in XInclude] differ from the linking features described in XLink in that they require specific behavior from the inclusion processor." XLink offers ways to describe relationships, not specific actions to represent those relationships. According to XInclude creator and IBM e-business architect Dave Orchard, "I created the predecessor to XInclude in April '99 because I saw the need for an XML element/attribute syntax for any XML vocabulary to specify an inclusion processing model. I've been very pleased to work with Jonathan Marsh of Microsoft to help refine the original work into a much better proposal." The XInclude proposal achieves its goal by describing an "inclusion facility" that uses a specialized element type for including other files within that element's document. (Actually, it doesn't define itself in terms of "files" but in terms of 'infosets,' because a W3C spec shouldn't preclude use on operating systems such as OS/400 and NeXTSTEP that don't use the concept of "files' . . . At 15 printed pages, the XInclude proposal is not very long, but it addresses many potential problems with a new method for allowing inclusion: (1) Its relationship to XSL's import and include features (2) Its relationship to various XLink features (3)The relationship of the including and included documents' namespaces (4) Inclusion 'loops': if one document can include another that can include another, what if a chain of inclusions forms a circle? (5) ID duplication: if an attribute declared as type ID is unique within its document, what happens if a document included within that one has an element with an ID attribute of the same value?"

- [March 03, 2000] "XML-Based Web Publishing System. Part VII: Creating the Page." By [*<TAG> Newsletter* Staff]. In *<TAG> Newsletter* Volume 14, Number 1 (January 2000), pages 6-11. "This is the seventh in a series of articles describing an XML-based Web publishing environment. We are using the *<TAG> Newsletter* site as an example of a system that can be built cheaply, but can scale and perform with the best systems out there. This month, we will present a middle-tier script that reads a single article as an XML document, selects one of several XSL stylesheets, transforms the XML to HTML, and presents it to the user.'] The article program, `Article.html`, uses the VBScript scripting language. This is a variant of the Visual Basic programming language. We chose VBScript on the flip of a coin (JavaScript is also supported by active server pages). However, the most important parts of the system are the techniques and algorithms. Any programming language that is supported on the middle tier (perl, Java, C++, OmniMark) can be used. The Article.html script uses the following steps to create a page (1) Determine the type of user (subscriber, registered visitor, or anonymous) (2) Determine the type of browser (3) Access the article using an SQL query. (4) Load the appropriate XSL stylesheet (5) Transform the XML into HTML (6) Build the HTML page. . ."

- [March 03, 2000] "FOP, Fonts, and Page Layout." By Bob DuCharme. In *<TAG> Newsletter* Volume 13, Number 12 (December 1999), pages 1-4. ['In this month's XML Beat, Bob takes a look at the newly adopted XSLT specification from the W3C and shows how it can work using James Clark's XT XSL Transformation engine.'] "In last month's

column, we saw how James Tauber's FOP program can turn formatting object files into Adobe Acrobat files. Along with the ability of James Clark's XT program to turn arbitrary XML files into XML files of another document type-for example, into XSL formatting object files-you have a free, cross-platform system for turning XML into nicely laid-out pages. (Perhaps I should have called this series of columns "important XML software written in Java by guys named James.") Since I wrote that last column, two important things have happened: first, XSLT has become a W3C Recommendation (http://www.w3.org/TR/xslt) making it an official, finished standard. Secondly, James has donated FOP to the Apache project (http://xml.apache.org/fop), making it part of a strong suite of XML tools with a great future. According to James, 'Apache encourages a real community of developers and ensures FOP a future independent of whether I continue developing it or not.' To introduce formatting object files in the last column, I showed an overly simplistic example. This month, we'll look at a more realistic example that can provide the basis for your own experiments. (The code is available at http://www.snee.com/xml). [...]. What is in FOP's future? According to James, 'Even once FOP supports everything in XSL, the job won't be done. FOP currently uses very simple algorithms for things like line breaking. I'd like at some stage to improve those and take advantage of the work done by people like Knuth. I'd also like to build in support for CSS as it involves for print. The other long-term goal is to provide a certain amount of interaction. There are cases where you need a human to step in and tweak some formatting and I'd like FOP to enable that'."

- [March 03, 2000] "Formatting Your XML with XSL and FOP." By Bob DuCharme. In <TAG> Newsletter Volume 13, Number 11 (November 1999), pages 1-3. "In the last two issues, this column looked at the XSLT standard that the W3C split off from the XSL specification. By providing a standard way to specify transformations from one document type to another, XSLT (along with XSLT implementations such as James Clark's XT) opens up big possibilities for XML application development."

- [March 03, 2000] "Editorial: Predictions for 2000." By Brian Travis. In <TAG> Newsletter Volume 14, Number 1 (January 2000), pages 1, 3-5. ['Our editor peers into his crystal ball to see what the future holds for the XML biz. Before he does this, however, he must fess up to the predictions he made last January. This is a humbling prospect, but it must be done.'] "Every January for the past five years (that's 1/200 of a millennium), I have been waxing predictorially on what I see happening in the business we cover here at <TAG>. This month, I'd like to look into my crystal ball and report on what I see. First, let's see how I did with last year's predictions. . ."

- [March 03, 2000] "Repository Wars." By Brian Travis. In <TAG> Newsletter Volume 13, Number 12 (December 1999), pages 1, 4. ['Brian reports on a conversation with Laura Walker, Executive Director of OASIS, the Organization for the Advancement of Structured Information Standards, concerning the state of the OASIS-sponsored XML.org Web site. He is concerned that the site has not reached its potential as an industry portal site for development and registration of XML schemas.'] "I had a conversation with Laura Walker,

Executive Director of OASIS, the Organization for the Advancement of Structured Information Standards. I was concerned that a site created and sponsored by OASIS, xml.org, has not reached its potential. Xml.org was launched amid great fanfare in May, 1999 as "The XML Industry Portal." In other words, a single place where you can find all you need to know about XML. Four partners ponied up $100,000 each to be involved in this effort. The four are IBM, Oracle, Sun, and SAP. Five other companies paid $25,000 to become XML.org "affiliates." The organization has a half-million dollars, and I don't see what it has accomplished. As I write this, the site is a handful of HTML documents promising that they will be doing great stuff Real Soon Now. . . [The XML.org Catalog] isn't really a repository so much as a way to find out who is working on what. Such information is valuable (I have used it several times myself), but a repository for industry-standard schemas is definitely needed. . . With a registration/repository spec available, along with an official XML schema from the W3C, the sharing of information will take a giant step forward. I hope the group finishes their work soon. I also hope XML.org can take advantage of the opportunity."

- [March 03, 2000] "XML-Based Web Publishing System Part VI: Database Access." By [*<TAG> Newsletter* Staff]. In *<TAG> Newsletter* Volume 13, Number 12 (December 1999), pages 5-9. "This is the sixth in a series of articles describing an XML-based Web publishing environment. We are using the <TAG> Newsletter site as an example of a system that can be built cheaply, but can scale and perform with the best systems out there. Part VI discusses the techniques used to access databases from middle-tier scripts. . . This month, we continue the technical deconstruction of the site by showing how we access the database using middle-tier scripts to provide two tables of contents for navigation and a program that provides final user formatting using XSL, the Extensible Stylesheet Language."

- [March 03, 2000] "Editorial: Chasing Paper." By Brian Travis. In *<TAG> Newsletter* Volume 13, Number 11 (November 1999), pages 1, 3. In an era of electronic delivery of information, you might think that paper is a thing of the past. Why do we need paper, you might say, when we have everything at our fingertips on the Web? I heard a recent news item saying that the "paperless office" has done more for paper sales than anything else. This month's editoral introduces the topic of getting information assets to a paper form, because, let's face it, that's what people still want."

- [March 03, 2000] "The Paper Path: XML to paper using TeXML." By Brian Travis. In *<TAG> Newsletter* Volume 13, Number 11 (November 1999), pages 4-9. "So, you've gotten your valuable information assets described in terms of XML schemas (either DTD or some other form of schema), and you've taken the painful step of converting your information from word processors and typesetting files into XML that adheres to your new schema. Now what? This article describes a path that has many pieces that must fit together exactly. That's the down-side. The up-side, however, is a very powerful XML-to-paper path that will not cost you a penny, and runs on any platform that runs Java."

## February 2000

- [February 29, 2000] "'XML Father' Leaves W3C for OASIS." By Edd Dumbill. From XML.com (February 29, 2000). ['Jon Bosak, the "Father of XML", announced to delegates at XTech 2000 today that he is stepping down from W3C activity and devoting his energies to OASIS. [...] One of the most significant messages of XTech 2000 was given by Jon Bosak in his opening keynote speech. He urged developers and vendors to support OASIS in its work to promote interoperability. Concerned to preserve the openness of XML, he foresaw the danger of e-commerce being dominated by large application vendors rather than open standards. In fact, so large is Bosak's concern, he has withdrawn from W3C work in order to concentrate wholly on his work with OASIS.'] "Jon Bosak, the original instigator of XML, today announced his departure from W3C processes to concentrate on his involvement with OASIS. In a keynote speech at the opening of the technical track of XTech 2000, Bosak explained that after many years of W3C XML involvement he felt it was critical to support OASIS in order to continue to preserve the openness of XML. Bosak commenced by reminding delegates what XML was developed for, and used this as a base to demonstrate the critical point at which the XML world finds itself. Giving some insight into why Sun Microsystems (his employer) supported the XML effort, Bosak said that the purpose of XML's development was to keep the Web *open* and *portable*, not hostage to a particular vendor's proprietary standards. The deployment of XML, then, creates an open, distributed, information infrastructure. The critical question posed by Bosak was *'Who will control electronic commmerce?'* E-commerce is the 'killer-app' for XML, and there are some crucial questions about how it will be implemented: how will buyers and sellers find each other, how are shared business semantics defined, and how does any of it get implemented outside of one vendor architecture? Outlining the differences between OASIS and the W3C, Bosak demonstrated why he thought OASIS was crucial to maintaining open agreements about shared XML interchange. He stated that, as the W3C is primarily a technology development organization, OASIS is left as really the sole organization dedicated to promoting interoperability by the development of standards (as opposed to technology). The ebXML effort was cited as the first example of such standardization processes..."

- [February 29, 2000] "SAX2 Event Sequence." By Michael Fuller. February 2000. [29/2/2000 (v1.1)] "This document attempts to describe the sequencing of SAX2 core and extension events that may be generated by a SAX2 XMLReader for an error-free XML document. Note that the actual events produced may vary according to the status of the various core SAX2 features, including (but not limited to) the features: (1) `http://xml.org/sax/features/namespaces`, (2) `http://xml.org/sax/features/namespace-prefixes`, (3) `http://xml.org/sax/features/validation`, (4) `http://xml.org/sax/features/external-general-entities`, and (5) `http://xml.org/sax/features/external-parameter-entities...`"

- [February 29, 2000] "Mac Web Servers: Serving Up XML." By David L. Hart [Contributing Editor and Columnist]. In *MacCentral* (February 24, 2000). "This XML series is starting to flush out some of the lesser-known XML-related applications for the Mac. But before we jump into updates to last week's column and new tools for this week's column, I'd like to relay an off-topic item. If you run a Mac Web server and like to keep it running, you may be interested in a survey being conducted by APC, makers of uninterruptible power supplies (UPS). A reader named "tony" passed along a pointer to the survey in which APC is gauging the interest in Apple-compatible and Mac-colored versions of their products. If you're looking for software-controlled UPS systems for the Mac, you might want to check out the survey. More XML development tools: In response to last week's column, a few more tools came to light for the Extensible Markup Language (XML) on the Mac..."

- [February 28, 2000] "Toolkit for Conceptual Modeling (TCM)." By Roel Wieringa (project supervisor), Frank Dehne, and Henk van de Zandschulp [Faculty of Computer Science of the University of Twente, and the Division of Mathematics and Computer Science of the Vrije Universiteit Amsterdam]. "The Toolkit for Conceptual Modeling is a collection of software tools to present conceptual models of software systems in the form of diagrams, tables, trees, and the like. A conceptual model of a system is a structure used to represent the requirements or architecture of the system. TCM is meant to be used for specifying and maintaining requirements for desired systems, in which a number of techniques and heuristics for problem analysis, function refinement, behavior specification, and architecture specification are used. TCM takes the form of a suite of graphical editors that can be used in these design tasks. These editors can be categorized into: (1) *Generic editors* for generic diagrams, generic tables and generic trees. (2) *Structured Analysis (SA) editors* for entity-relationship diagrams, data and event flow diagrams, state transition diagrams, function refinement trees, transaction-use tables and function-entity type tables. (3) *Unified Modeling Language (UML) editors* for static structure diagrams, use-case diagrams, activity diagrams, state charts, message sequence diagrams, collaboration diagrams, component diagrams and deployment diagrams (only the first three and last two UML editors are functional at this moment). (4) *Miscellaneous editors* such as for JSD (process structure and network diagrams), recursive process graphs and transaction decomposition tables. TCM supports constraint checking for single documents (*e.g.* name duplication and cycles in is-a relationships). TCM distinguishes built-in constraints (of which a violation cannot even be attempted) from immediate constraints (of which an attempted violation is immediately prevented) and soft constraints (against which the editor provides a warning when it checks the drawing). TCM is planned to support hierarchic graphs, so that it can handle for example hierarchic statecharts. Features to be added later include constraint checking across documents and executable models. [...] A conceptual model of a system is an abstraction of the behavior or decomposition of the system. A conceptual model can be presented visually by means of diagrams, graphs, trees, tables or structured text. During software development, a number of stakeholders must reach a common understanding of the behavior and structure of the software. These are for example users and sponsors (or their representatives), analysts, designers and programmers. An important function of

conceptual models is to facilitate this understanding..." [Why is this item in the reference collection? You should already know. Reminder: Syntax is easy, semantics is hard. Syntax is not the "real" problem, nor even the most fundamental perspective, if we are seeking to provide an open, interoperable, maintainable environment in which all the SMEs, programmers, end users, and other relevant stakeholders may contribute to the design/development/documentation/use/maintenance of the information system modelled in software. It's all about semantic transparency; markup syntax is a grotesque monstrosity in this environment. This explains why attaching methods directly to markup elements only "sorta" works, part of the time, for short-term results, in small projects of limited complexity. XML appears to be a necessary step (though an unnecesary distraction and misguided agenda in some cases) in the evolution of sound thinking toward a standards-based "group-think" formalism that enables solution of the "real" (sic!) problem. Conceptual modeling tools and requirements engineering concepts are part of that enterprise. You can construct (even generate) a hundred (equally) competent XML syntaxes for one sound conceptual model; the markup model syntaxes are ephemeral, and not the essence of anything important. A sound conceptual model can be. The (current) focus on syntax-based formalisms will probably look silly once enough people realize the nature of "the problem" at a more abstract and foundational level, along with the theoretic foundations of its solution. See for example: (1) *Journal of Conceptual Modeling*; (2) Object Role Modeling (ORM); (3) Alexander Borgida, "Features Of Languages For The Development Of Information Systems At The Conceptual Level." The paper "surveys several languages which purport to allow the description of an IS in a manner which models the real-world enterprise more naturally and directly than has been the case traditionally. The goal of this approach is to facilitate: (a) the *design and maintenance* of the IS, by adopting a vocabulary which is more appropriate for the problem domain, and by structuring the IS description as well as the description process; (b) the *use* of the IS, by making it easier for the user to interpret the data stored, and thus obtain information..." In recent years, Alex Borgida has been working on description logics.</opEd>]

- [February 29, 2000] "Sun links XML, Java for e-commerce site building." By Wylie Wong. In *CNet News.com* (February 29, 2000). "Sun Microsystems is taking the two of the most prominent Web development languages -- the Extensible Markup Language and Java -- and linking them, potentially expanding Java'a appeal as a tool for building e-commerce Web sites. Sun, which created the Java programming language, today released an application programming interface, or set of instructions, that serves as a common interface to Extensible Markup Language (XML), a budding Net standard for data exchange, from Java applications. The common interface, called the Java API for XML Parsing (JAXP) ensures that XML parsers, built by companies such as Sun, IBM and Microsoft, are all compatible. A parser dissects and reads XML text in an application, much like a Web browser reads HTML to generate Web pages on a computer. Previously, developers had to write software code that connected Java to the parser. The final version of the Java-to-XML interface, previously available in a test version, can be downloaded today from Sun's Web site. Nancy Lee, Sun's senior product manager for XML, said the final version features a

few minor bug fixes. 'It's stable and solid enough for production,' she said. Lee said Sun is considering adding the interface as part of the core Java standard. In the meantime, the company is working on building more links between the two development technologies, she said. Sun is working to add more XML support for a technology called Java Server Pages, Lee said, which let developers easily add Java code to their Web pages. More specifically, Sun will add support for the Extensible Stylesheet Language (XSL) Transformation standard, which will let programmers easily use XML to tie together their software. XSL technology lets users define how a document is presented, specifying color and font. XSL Transformation lets developers easily map different documents together without having to write a lot of additional code."

- [February 29, 2000] "IBM jumps into wireless pool." By Wylie Wong. In *CNet News.com* (February 29, 2000). "IBM is carving out its slice of the wireless pie. IBM today unveiled new software that translates existing information and images on Web sites into a format readable by handheld devices, such as cell phones and personal digital assistants, and by future technology, such as Web browsers in cars. Big Blue joins a raft of software firms hoping to provide Internet service providers, telecommunications carriers, and Internet-based businesses with the underlying technology they need to offer Web content -- originally intended for display on PCs and laptops -- to users of increasingly popular wireless devices, including cell phones and personal digital assistants. . . While Oracle's technology supports XML (Extensible Markup Language), a Web standard for exchanging data, IBM's technology can support more types of data formats -- including XML and HTML, the language used to create Web sites -- and images, said analyst Anne Thomas Manes of the Patricia Seybold Group."

- [February 28, 2000] "Three Faces of XML in Zope: Services, Documents, Datastores." By Jon Udell. February 2000. O'Reilly Extra Bits. ['This is the text of a talk given on Tue January 25, 2000, as the keynote for the Zope track of the 8th International Python Conference.'] "I was reading an online discussion somewhere the other day, and somebody asked: 'What's the best platform for building collaborative Web-based software?' Somebody else answered: There are really only two choices, Domino and Zope.' . . . the world has changed, and it's changed in precisely the ways that level the playing field for Zope. The key factors are: Internet standards; nearly-universal Web dialtone; object-oriented, network-aware scripting languages like Python; and most of all, a culture of open-source software development that thrives not only because the tools are freely exchanged, but also the knowledge of how and why to use them. Central to Zope's mission is its various kinds of support for XML, and that's the focus of my talk today. I'll admit that when Paul Everitt asked me to come and speak here, I was reluctant. After all, I'm a guy who's done almost all his Web programming in Perl and Java, and only recently begun to explore the world of Python and Zope. But after Paul and I talked for a while, I realized that we share the same vision for the future of software, and the future of the Web. It's a vision that looks beyond the parochial rivalries of our time: Windows vs Linux, Perl vs Python, Microsoft vs. everybody else. When you focus on the big picture, I think there are just three things that

matter: (1) a network-services architecture; (2) the document interfaces through which people interact with these network services; (3) the datastores that underly these network services. Zope's architecture addresses all three of these points, and in each case, XML can play an crucial role. . . It's true that Zope has its secrets, but it's also true that Zope takes the 'open' in open source very seriously. XML is an important part of the story. It can help ensure that Zope's network services, document interfaces, and datastores remain open, and in the right ways. The whole story hasn't been written yet, but I'm enjoying it so far, and I can't wait to read the next chapter."

- [February 28, 2000] "Tutorial: XML and Scripting Languages. Manipulating XML documents with Perl and other scripting languages." By Parand Tony Daruger (Co-founder, Binary Evolution, Inc.). From *IBM DeveloperWorks* February 2000. ['Find out how to work with XML in Perl and other scripting languages. In this first tutorial of his series on using scripting languages to manipulate and transform XML documents, Binary Evolution's Parand Tony Daruger takes you through the first steps of using these techniques with Perl. You'll see a method for transforming XML to HTML, followed by a simple stock trading application that uses Perl, XML, and a database to evaluate trading rules. You can apply the techniques using other scripting languages too, including Tcl and Python.'] "XML and scripting languages have had a natural relationship since the early days of XML's inception. One of the original goals of the XML design group was to enable a Perl hacker to write an XML parser in two weeks. Handling and manipulating XML has also been fertile ground for using scripting with XML: XML is designed to be human legible, and thus mainly text based. Scripting languages have historically been extremely adept at manipulating text. Scripting's flexibility and power make it a perfect complement to XML's descriptive abilities. XML is a medium for the expression, storage, and exchange of information. The addition of scripting allows this information to become active: to affect actions, undergo transformations, connect with existing systems, and take action instead of simply expressing information. In this article we will use Perl to manipulate and transform XML. You can apply the same techniques using other scripting languages too, including Tcl and Python. First a technique for transformation of XML to HTML will be shown, followed by a simple stock trading application that uses Perl, XML, and a database to evaluate trading rules. [...] You can apply these techniques to larger projects, yielding fast and flexible XML-based systems. Solutions built using scripting languages as the transformation and command language -- with high-performance C/C++-based parsers handling the parsing of the XML document -- offer a best-of-breed approach. This approach provides the speed of lower level languages while providing the ease of scripting."

- [February 28, 2000] "Practical Transformation Using XSLT and XPath." (XSL Transformations and the XML Path Language) [Seventh Edition of XSLT/XPath Tutorial Materials.] By G. Ken Holman. Seventh Edition, 2000-02-25. ISBN 1-894049-04-7. Crane Softwrights Ltd. 324 Pages. "This comprehensive Seventh Edition contains all constructs of the W3C Recommendations for XSLT 1.0 and XPath 1.0 with updated descriptions, examples and diagrams to the Sixth Edition for some constructs based on feedback from

delivering this material in Philadelphia and Helsinki. Content related to archaic implementations of the language has been weeded out and the focus is now entirely the W3C Recommendations (except for the annex describing the stand-alone and diagnostic environment for Microsoft's MSXML implementation). Please refer to related Microsoft web pages for descriptions regarding the level of implementation of the W3C Recommendations. The free download preview excerpt (in both A4 and US-letter page sizes) has also been updated to reflect the content of the Seventh Edition. If you have downloaded the excerpt in the past, you may wish to get an updated copy."

- [February 28, 2000] "One-stop shop for microarray data." By Alvis Brazma, Alan Robinson, Graham Cameron, and Michael Ashburner (European Bioinformatics Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge, CB10 1SD, UK). In *Nature* 403 (February 2000), 699-700. "Fortuitously, many problems in the storage and description of gene-expression data and experiments parallel current problems with the Internet -- too much information, which is hard to search without being deluged by irrelevant information. One reason is that HTML, the language used for documents on the Internet, cannot describe any semantics of the information it carries -- hence the development of XML (Extensible Markup Language) for defining data formats for storing semi-structured and structured information. XML has been designed specifically to allow people to create their own customized mark-up languages for storing any type of data and their semantic content. XML seems well suited as a format for the formal description and annotation of microarray information, and ways to describe microarray experiments using this language are being developed. This will mark an important milestone in the formalization of standards for microarray data and facilitate exchange of information among researchers. XML specifications have already been proposed for genome annotation, biomolecular sequences and computational analyses. Several of the largest microarray laboratories in academic institutions -- Stanford University and the Whitehead Institute, among others -- are developing their own internal databases, as are the larger commercial microarray companies such as Affymetrix and Incyte. GeneLogic is creating a commercial gene-expression database using data obtained on the Affymetrix platform. Harvard University has created a database that compiles and represents data from several public sources in a consistent format. The Computational Biology and Informatics Laboratory of the University of Pennsylvania is incorprating ontologies to describe samples. There are at least three projects for large, public gene-expression data repositories: GeneX at the US National Center for Genome Resources; the Gene Expression Omnibus at the US National Center for Biotechnology Information; and ArrayExpress at the European Bioinformatics Institute (EBI). Compatibility between these projects requires common standards for data representation, annotation and exchange, and discussions between these bodies are thus being focused on XML... Progress towards such standards was made last November, when many of the main academic and commercial users and developers of microarray technology accepted a list of recommendations for data representation and annotation (see http://www.ebi.ac.uk/microarray/). Five working groups, coordinated by US and European specialists, have been set up to develop standards in experiment description and data

representation; microarray data XML exchange format; ontologies for sample description; normalization, quality control and cross-platform comparison; and data-query language and data-mining approaches. The users will meet again in May to discuss detailed recommendations from the working groups. Meanwhile, the EBI, in collaboration with the German Cancer Research Centre, is developing ArrayExpress, a gene-expression database compliant with the current recommendations. The first draft of the data model used in ArrayExpress was posted on the Internet in October (see http://www.ebi.ac.uk/arrayexpress/). This model will be refined in the light of discussions by working groups, and the next draft will be released in a few months' time, together with a database schema. The schema will be implemented with data from collaborating institutions, creating a prototype database by the spring. But it is a giant leap from a prototype to a working database, with associated tools for submitting and retrieving microarray data."

- [February 28, 2000] "Creating High Performance Web Applications using Perl, Display Templates, XML, and Database Content." By Alex Shah and Tony Darugar. "Today's online applications demand more from web technology than C-based CGI programming can provide. A web site is a living document: the content, the presentation, and the software that drives that presentation need to change often. To meet the day to day requirements of a dynamic web site, a developer must use tools and technology that maximize flexibility and minimize development time. We will describe an online system that provides a framework for the creation of high performance, database driven dynamic web sites. Simple HTML templates that can be manipulated in WYSIWYG editors will be used for display of the content. Content will be stored in XML documents or within a database, allowing publishers to update the site easily. The software that glues the database and XML content to the display templates will be written with one of the most stable, well supported scripting technologies available: Perl. The Perl language was chosen because it is non-proprietary, platform and operating system independent and is familiar to most web developers. Superior web performance will be achieved through the use of Perl engines that maintain persistent database connections and communicate directly with the web server via the ISAPI or NSAPI protocols. Perl is very well suited for online applications. The language provides a simple syntax and built-in functions for handling many online tasks. It is multiplatform, well tested and supported, and is non-proprietary. It also has the additional benefit of being supported by an entire community of developers rather than a single vendor. This allows users to take advantage of the latest technologies as they appear, well before they can be implemented into proprietary systems. In our simple recipe example, we have demonstrated Perl's ability to easily load and display content from both databases and XML."

- [February 28, 2000] "Challenge Four Highlights XML." By Todd Sunsted and Daniel Steinberg. February, 2000. In *JavaWorld Code Masters*, Challenge 4. "['JavaWorld's How-To columnist Todd Sunsted has created an interesting challenge that uses XML to store the specification of an ordinary differential equation. It is up to you to parse the equation, solve

it numerically, and then generate an XML output file. Todd's challenge helps build an appreciation for the portability of data stored using XML.'] "This month's challenge focuses on the world of XML. In particular, we look at XML as a way of storing data that we can access in a useful way and then use again to store the results of a calculation. An advantage of using XML for such purposes is that the XML code includes data and information about the type and structure of the data. Those unfamiliar with XML may be bothered by the size of the files needed to hold information. In our first equation, the five characters $y'=3y$ will take more than a dozen lines to encode using XML. The benefit is portability. You will see this as you complete the first part of the challenge: building a parser to recover information from the XML file. Although the intention of this challenge is to use a Java program to find numeric solutions for ordinary differential equations (ODEs), this is really a challenge about XML. Your goal is to find a numerical solution to an ODE. This challenge consists of three main components: (1) The XML file that contains the ODE and the initial conditions; (2) The Java program that uses this information (3) The XML file (generated by the Java program) that contains the solution and the values calculated along the way..."

- [February 28, 2000] "XML, EDI, Content and Commerce." By Bill Trippe. In *The Gilbane Report. Computing, Content, and Commerce Technology and Trends* Volume 8, Number 1 (February 2000), pages 1-6. "It is a bit surprising how much confusion exists over the relation between XML and EDI. There are certainly some special interests contributing to the confusion but there is remarkably little discussion regarding the minor controversy not conducted in good faith. This is not a complicated issue, but is one you need to understand to avoid wasting resources. The way to think about the XML versus EDI question is to step back and look at the bigger picture of e-commerce. EDI was created to grease the wheels of commerce by facilitating rapid and frictionless exchange of business documents. Mostly these documents looked more like structured databases than documents. This structure allowed EDI to be simple and reliable. Although EDI was created in a commerce environment that was stable and well understood there were still opposing views about the best way to encode simple business documents, as the competition between ANSI X12 and EDIFACT showed. Nonetheless, the relative success of EDI naturally raised the question: "Why can't we use EDI to exchange all these other documents as well?" The answer was that most documents were not as structured and predictable as a purchase order or invoice was. Web content is much more chaotic, but e-commerce demands that it be integrated with structured data in ways that are disciplined and flexible and very real-time. How do you reconcile these apparently competing requirements? First you need to have a clear view of the big picture. This month Bill takes you on a high level tour of the issues related to the evolution of the XML versus EDI question and the activity associated with it. [...] Will XML solve every problem of EDI? Perhaps it doesn't today, but ultimately, XML's flexibility will win out. Some of the traditional challenges of EDI are more easily solved with XML. Your purchase order is still not my purchase order, but the tools for mapping disparate XML data types are easier to implement and already plentiful. The momentum is certainly there. Tool companies are rapidly adding components to integrate with existing EDI and ERP systems,

and sales of software and service are booming. Still, rather than a reflexive reaction to the growing fad, implementers should consider all the normal factors of cost, reliability, security, and maintainability. Your analysis will increasingly point you to the web as the demands of e-commerce and the resulting need to integrate content and commerce permeate IT planning."

- [February 28, 2000] "E-commerce Evolution and Content Strategies." By Frank Gilbane. In *The Gilbane Report. Computing, Content, and Commerce Technology and Trends* Volume 7, Number 10 (November/December 1999), pages 1-9. "Our goal this month is to describe how e-commerce solutions are evolving to help you get your bearings and think about your strategies in the context of the driving force of e-commerce. . . The more dynamic your content, the more valuable it will be to an e-commerce application. Whether the data is structured or unstructured, if you can manage it with a metadata application you are at least halfway to integrating with an e-commerce system. If your content is in XML you are ahead of the game and probably of your competition. This should obviously be a key part of your content strategy. If you will never have to integrate with an e-commerce system this should still be part of your content strategy so you can use all the mainstream tools and expertise that will be available. . . Don't underestimate the expertise you may have in managing data, content and metadata. XML has peaked everyone's interest in metadata and in managing unstructured data, but few know how to design an application that incorporate either. Not that you will have all the answers. E-commerce adds a lot of challenges that few can even claim to be able to list never mind resolve. We are all still learning. The inefficiencies of today's e-commerce implementations are tolerated only because the market is new and demand has kept ahead of supply. This will change as the market matures and companies have to compete on more than being first to market. Competition will force both .coms and click and mortar companies to improve the efficiency of their e-commerce operations and to incorporate customer acquisition capability that can make use of all the data and content that has been and is being collected. Understanding e-commerce evolution as we have described it should help you think about where your organizations and systems need to fit into the overall process. The four stages provide a conceptual framework and a logical way to consider implementation and organizational implications -- and there are significant implications for most of you. Data and content integration is still coming. Even with the "volume" of XML activity it will take some time, but e-commerce ensures it will happen and all information system applications will benefit. Synchronize your content strategies with e-commerce evolution and remember that content may be king, but only when managed."

- [February 28, 2000] "XSDL - A Next Generation Schema Language to replace DTDs. [XSDL Presentation.]" By Dr. Matthew Fuchs, CommerceOne. Presented at XML SIG (The Center for Information, Connection, and Education). February 24, 2000. "For over a year, the W3C's XML Schema Working Group has been developing XSDL, a next-generation schema language to replace DTDs. The goal has been a language to support the requirements of a whole range of applications beyond documents; active participants have included Oracle, Microsoft, HP, Sun, and CommerceOne, among others. The draft Schema

language has several features that propel it far beyond DTDs as a means of describing information. It includes both object-oriented extensions for element types and strong datatyping for attribute values and string content. It has strong integration with namespace and a powerful composition mechanism to allow definitions from multiple schemas to work together. This talk will describe the important features of this language, due to become a W3C Candidate Recommendation in March (we will also describe what a "Candidate Recommendation" is), and describe potential applications, such as improved XML/Java integration. While XSDL implementations are not yet available, almost all the significant features are already available in CommerceOne's SOX (Schema for Object-oriented XML), which was one of the inputs to the XSDL process. Participants who are interested in a preview of the future of XML schema languages can download and use our publicly-available SOX parser http://www.marketsite.net/xml/xdk." [From Earl Bingham: "I just heard a presentation last night from Mathew Fuchs from CommerceOne who is on the W3 board for XML Schemas. He gave a great presentation on XSDL and how it is evolving. If anyone is interested I can send out the powerpoint slides and I also made a video of the presentation that I can make copies for anyone who wants it. It also has a great demo of XML Authority software and how this can be used with some of the latest standards." For other background and references, see "XML Schemas."

- [February 28, 2000] "Web Applications and the PIA [Platform for Information Applications]." From RiSource.org. February, 2000. "This paper describes an XML based design approach and development methodology that supports ongoing maintenance while minimizing the need for special technical or programming skills. Most appropriate for applications deployed by smaller organizations without significant IT support, these design principles are embodied by the Platform for Information Applications (PIA). PIA based Web applications consist primarily of XML documents written using a set of domain specific tags. (<h1> and <a> are examples of HTML tags. XML, which stands for eXtensible Markup Language, is similar to HTML but allows tags to be defined and used as needed.) Maintenance means editing these documents using any standard XML editor. The flexible PIA engine serves pages in response to client requests by dynamically processing these documents in accordance with developer defined semantics. This processing may include simple tag substitution, page transformation, database lookup and insertions, or any other functions appropriate to the application domain. In essence, the tags provide a specialized vocabulary available to use in customizing the application. This approach promises platform independent, easily customizable Web applications. XML support in the form of editors and other tools already exists on essentially all platforms and continues to grow. Specifying the processing in XML not only makes the logic more accessible but restricts the dependence on a particular computing environment to the implementation of a few tags. In the PIA, semantics for the small set of primitive or 'basic' tags are defined in Java, while the majority of application-specific (defined by developers) tags are specified in terms of these primitives. Freely available as open source, the PIA software, written in pure Java, is available from RiSource.org and includes interfaces that conform to all relevant standards, including the W3C's Document Object Model (DOM), and the Simple API for XML (SAX).

RiSource.org also distributes and helps coordinate the development of open source Web applications including as a workflow system, shared calendar, Web site management tool, and a personal 'browsing assistant.' As the technology for developing and deploying XML based Web applications becomes standardized, RiSource.org will help facilitate the collaboration of the expanding pool of developers who create and maintain Web applications. This White Paper is intended for web developers: it describes a design and development style well-suited to creating customizable Web applications. While this paper discusses development in the context of the PIA technology, the fundamental philosophy, which can be roughly characterized as "Web application maintenance is mostly a task of document management and should not require specialized programming skills or tools," applies equally well to other platforms. Several other technologies, such as Meta-HTML, PHP, and the proposed Apache XML initiative, support some of the "active XML" features of the PIA. We encourage the evolution and convergence of these technologies to a standard, platform-independent design for Web applications that facilitates shared development and ongoing maintenance."

- [February 28, 2000] "Business-to-Business Process Integration through XML and the Netfish XDI System." By Netfish Technologies. January, 2000. "While XML is the ideal conduit for sharing business and workflow information, it is still a language in which a business vocabulary needs to be defined between trading partners. For XML messages to be interpreted by other companies, both partners need to agree on a common XML-based B2B standard, which will define the document formats, allowable information, and process descriptions. There are a few such standards that are specific to vertical industries or other like-minded groups. Adherence to a common standard is not always necessary, but it can increase the number of trading partners a company can easily integrate with and it may help define the base process definitions that will be created between the companies. A sampling of the important XML protocols or standards are described below... Companies seeking to improve efficiency and profitability will increasingly use business-to-business integration to work more closely with trading partners. The widespread adoption of XML as a common data language is giving B2B integration the critical mass it needs for rapid growth. B2B standards built on XML will accelerate this adoption and tightly integrate companies within specific vertical industries and around common well-defined business processes. Netfish recognizes this next generation in business-to-business process integration and has built a single system designed for all of a company's B2B process integration and communication needs. It is a single system that includes the messaging communication infrastructure, the business data integration components, as well as the workflow and process management element. And since Netfish supports all forms of electronic communication including EDI as well as major XML standards, customers will only need one system to talk with all of their trading partners, with only one point of integration to their enterprise applications."

- [February 26, 2000] "Java API for XML Parsing - Version 1.0 Public Release." By James Duncan Davidson, Larry Cable, Takuki Kamiya, Scott Dietzen, Jon Winston, (*et al.*).

February 18, 2000. "In many ways, XML and the Java Platform are a partnership made in heaven. XML defines a cross platform data format and Java provides a standard cross platform programming platform. Together, XML and Java technolgies allow programmers to apply 'Write Once, Run Anywhere' fundamentals to the processing of data and documents generated by both Java based programs and non-Java based programs. This document describes the Java API for XML Parsing, Version 1.0. This version of the specification introduces basic support for parsing and manipulating XML documents through a standardized set of Java Platform APIs. When this specification is final there will be a Reference Implementation which will demonstrate the capabilities of this API and will provide an operational definition of the specification. A Compatibility Test Suite will also be available that will verify whether an implementation of this specification is compliant. This specification is intended for use by: (1) Parser Developers wishing to implement this version of the specification in their parser; (2) Application Developers who use the APIs described in this specification and wish to have a more complete understanding of the API. This specification is not a tutorial or a user's guide to XML, DOM, or SAX. Familiarity with these technologies and specifications on the part of the reader is assumed... [Future directions include XSL Plugability Support:] XSL (eXtensible Stylesheet Language) is a language for expressing stylesheets that can be used with XML document. It consists of two parts: (a) A language for transforming XSL documents (also known as XSLT) (b) An XML vocabulary for specifying formatting specfics. XSL Transformations has been formalized as a W3C Recommendation. In a future version of the specification, we would like to provide a plugability API to allow an application programmer to provide an XML document and an XSLT document to a wrapped XSLT processor and obtain a transformed result..." See the main news entry for details on the new public release.

- [February 25, 2000] "SQL Server 2000: New XML Features Streamline Web-centric App Development." By Joshua Trupin. From MSDN. February, 2000. "With XML support in SQL Server 2000, you can query SQL over HTTP with a URL, bring the data down to the browser, and manipulate it on the client machine. By adding Internet Explorer 5.0 to the mix and using XSL to convert the XML to HTML, you can lighten the load on your database server. Going still one step further, by using Vector Markup Language you can even create drawings on the fly using the data from your SQL queries. This article illustrates this combination of technologies by leading you through the creation of a Web app that queries a digitized street map database that's been imported into a SQL Server database, sorts and displays the data using XML, and draws maps using VML. . . MicrosoftSQL Server 2000, formerly codenamed Shiloh, is slated to include a number of new features that are designed for the power database user. One of the most interesting is its XML capability. Three features in particular combine to make SQL Server 2000 an XML-enabled database server: You can access SQL Server through HTTP by building a SQL-compliant URL The SELECT statement has a new FOR XML clause that supports the retrieval of results in XML format The data in a database can be updated through an XML-based gram The inclusion of these three features will make SQL Server fabulously simple to use when building a Web site. In this article, I'll discuss these features, provide a demo application

that puts them to use, and give you some tips on this upcoming version that will make your life easier." [Note: This article assumes you're familiar with SQL, XML, and XSL.] See also the code and the data for the article."

- [February 25, 2000] "Inside MSXML Performance." By Chris Lovett. In "Extreme XML" Column. (February 21, 2000). ['Extreme XML columnist Chris Lovett looks at variables that can affect MSXML performance and examines some important scenarios associated with the Document Object Model (DOM).'] "I definitely got the message from your online comments that we need more 'novice-level' material and some real XML applications. However, this article was already in the pipeline -- and is intended for the advanced XML developer. (After all, this column is called 'Extreme XML'!) That said, this article assumes you are familiar with XML and the Microsoft XML Parser (MSXML) in particular. See the MSDN XML Developer's Center for more information. So, you're designing your XML-based Web application and you need to know what kind of performance to expect from your XML server. Obviously, this depends a lot on what processing you plan to do. It is hard to generalize, because there are so many variables -- such as the size of the XML documents, the amount of script code required to process the documents, the amount of output generated, and so on. For example, major variables that can affect the performance of MSXML include: (1)The kind of XML data; (2) The ratio of tags to text; (3) The ratio of attributes to elements; (4) The amount of discarded white space. To illustrate some of these variables, I'll use four sample data files..." Also: source code for the article.

- [February 25, 2000] "EAI Directions. XML and LDAP are two of the more interesting new additions to the enterprise application integration tableau." By Nelson King. In Volume 3, Number 4 (March 01, 2000), pages 40-45. ['Nelson King describes how two of the newest options for EAI -- lightweight directory access protocol (LDAP) and extensible markup language (XML) -- offer some compelling opportunities.'] "The last few years have brought several important technologies adapted for EAI: object orientation, application servers, and now lightweight directory access protocol (LDAP) and extensible markup language (XML). . . I can tell you right now that XML is going to become part of many EAI approaches, probably within two years. It fits all the criteria: It solves specific problems. It is accepted as a standard. Its use is widespread. There is a distinctive and increasing need for what it does. All true, but XML is one technology that must be watched carefully for fragmentation and product-specific implementation. It's also not a solution for everything EAI. In other words, XML is a 'barge' approach to trading data. It's relatively slow and cumbersome, but it can carry a load and doesn't require a lot of fancy equipment. It works well to move data between two systems that know little or nothing about each other. Alternatively, a hydrofoil approach (as with internal applications and some EDI systems) can vastly outperform XML if the parameters of exchange are well known, relatively fixed, and the system can be optimized. Ultimately, the value of XML to EAI may not be its miraculous powers of integration, but the fact that a lot of software companies, consultants, writers, and developers think it has great powers and will provide the world with a flood of products and support material. You may find that while some proprietary solution might actually be better

for a specific EAI project, it may be much easier to find somebody who can actually do an XML project. That may be the last, but not the least criterion for a new technology."

- [February 25, 2000] Advanced XML Applications in Zope." By Amos Latteier. From XML.com. February 23, 2000. ['Concluding his three-part tutorial on XML and Zope, Amos Latteier discusses the wider implications of creating XML applications with Zope, demonstrating with the creation of an RSS channel class.'] "Zope is an open source application server that allows you to develop web applications quickly. With it you can develop network services that interoperate via XML. In this article we'll look at how to build a web application that reads and writes XML. Zope publishes objects on the Web. We've seen how you can import XML into Zope, give it behavior, and publish it on the Web. This model of using XML as Zope objects is very appealing because of its simplicity. You can explore the elements of your XML and call methods on them directly. However, in more complex XML applications, this sort of scheme may not work well. In real-world XML applications you may find the following: (1) You need to adapt heterogeneous data into a coherent object model. For example, you may need to work with XML from different DTDs, or you may need to work with both XML and non-XML data. (2) Your object model may not map well onto the DTD. For example, your DTD may describe documents as containing authors while your object model may see an author as the container of a document. (3) You may wish to use different DTDs to represent the same type of objects. If different DTDs reveal different information about your objects, how can you decide which is the authoritative description of your object? These problems and others lead us away from using XML directly as application objects... Zope provides a host of resources that can be useful for turning XML data into a web application. Zope gives you searching, security, persistence, over-the-web management, support for many network protocols, rapid application development, and more. Add to this the ability to read and write XML over the network, and you have a good environment for XML application development."

- [February 25, 2000] "Extensible and More." By Alan Kotok. From XML.com. ['Two years after the XML 1.0 Recommendation, we see XML being applied in many areas--especially e-business. Alan Kotok (DISA) takes a snapshot of XML e-business activity.'] "This survey, taken in January 2000, shows 124 different XML business vocabularies in use, development, or planning. Sources for the survey include leading directories of XML applications collected by XML.com, OASIS/Robin Cover, Schema.Net and IBM's alphaWorks. The survey also covers XML vocabularies registered with OASIS's XML.org and Microsoft's BizTalk.org portal, as well as those managed by Data Interchange Standards Association (my current employer) and other standards services. The purpose of this survey is to show the extent of XML's penetration into the world of business data exchange, which covers transactions between businesses and also with consumers. As a result, the survey *excludes* XML vocabularies for enhancing XML, such as XML Schema, XPath, or XLink, even though they may have business implications. It also excludes applications designed for strictly publishing purposes, such as XHTML, even though they too may have use in business. But the survey tries to cover as many potential business

data exchanges as possible, and thus includes scientific, technical, and even religious vocabularies... To help understand the various ways in which XML for business data exchange has grown, the survey breaks down the applications into three major categories: (1) Frameworks: specifications for structuring XML messages between parties for exchanges both within and among industries; (2) Functions: guidelines for specific business operations that cut across industry boundaries; (3) Verticals: messages for exchanges within a specific industry."

- [February 25, 2000] "Putting XML to Work at XTech 2000." By Edd Dumbill. From XML.com. February 21, 2000. ['Next week XTech 2000 will begin in San Jose, California. XML.com will be bringing you daily coverage from the conference. To help you plan your meeting attendance at XTech 2000, we have also created an online conference organizer.'] "Just under a week from now, XTech 2000 will begin in San Jose, California. XML.com is proud to be a co-host of the conference, organized by the GCA. If you haven't booked to attend the show, it's not too late to do it now. XTech 2000 runs from February 27 to March 2. For more information, see the GCA's web site. XTech 2000 is aimed particularly at developers, and provides a forum for learning about the most exciting technical developments in XML. Tim Bray, conference co-chair, commented that 'this is the most substantive program of talks about XML technology that has ever been put together.' Schedule highlights range from a talk on the XUL user interface language (as used in the http://www.mozilla.org/">Mozilla web browser) to 'What XML Schema Designers Need to Know About Measurement Units.' The conference program is a great demonstration of the widespread application of XML." See the main conference entry for details and references.

- [February 25, 2000] "XML-Deviant: Spotlight on Schemas." By Leigh Dodds. From XML.com. February 23, 2000. ['As the W3C XML Schema work nears the "Candidate Recommendation" phase, criticism from XML developers abounds. Leigh Dodds summarizes the recent debates.'] "The XML Schema specification, the W3C's upcoming replacement for DTDs, has become a recurrent topic on XML-DEV. Numerous questions about its features have been explored, and some concerns raised about the readability of the Working Draft. With the prospect of a new draft appearing shortly, this week's XML-Deviant takes a look at some of the main issues under debate. Your Schema or Mine? A browse through the W3C Technical Reports and Publications uncovers several proposals defining schema extensions for XML. Many more exist outside the W3C process, including Document Structure Definition and Schematron. Tool support for these alternative proposals is varied, and often limited to those of the tool vendor(s) contributing to the proposal. However, the official W3C schema effort itself is not yet complete either, and currently has little in the way of tool support to back it up..." For a variety of schema proposals, see "XML Schemas."

- [February 25, 2000] "BEA unveils WebLogic Commerce Server 2.0." By Antone Gonsalves. In PC Week [Online] (February 22, 2000). "BEA Systems Inc. is focusing on speed of deployment in the next version of its WebLogic Commerce Server, which contains

new features for Web sites to tailor information and services to customers. WebLogic Commerce Server 2.0, which was unveiled Tuesday at the 2000 BEA Users Conference in San Francisco, comprises a set of Enterprise JavaBean components that provide a variety of electronic commerce-related application services, including a product catalog, shopping cart, inventory management, order entry, order management and shipping. The company uses the XML (Extensible Markup Language) based integration server from WebMethods Inc. to extract pricing information from partners and send orders back. Single-Shop plans to upgrade to Commerce Server 2.0 and use the personalization features to suggest products to customers based on buying history. Commerce Server also includes the JRules business-rules engine licensed from ILOG Inc. The new feature enables a business analyst, rather than a programmer, to set the conditions for transactions. XML support is being built into the upgrade so any of the components can be invoked via XML, which will also be the mechanism for interacting with the content manager and for storing business rules, officials said." See also: "BEA Tuxedo 7.1 Delivers Powerful New Security Framework for E-Commerce Transactions. Enhanced Security and XML Support Strengthen B2B and B2C E-Commerce Capabilities in Market-Leading Transaction Server."

- [February 25, 2000] "XML: The Great Redeemer? Lucie Fjeldstad on Push, Portals, and Bill Gates. [Lucie Fjeldstad, DataChannel]." By Jack Vaughan. In *Application Development Trends* Volume 7, Number 2 (February 2000), page 16. ['Lucie Fjeldstad offered her views on XML and how the standard will play out with vendors.']

- [February 25, 2000] "Software Agents Go to the Movies." By Dana Moore and Ed Greengrass. In *Application Development Trends* Volume 7, Number 2 (February 2000), pages 41-48. ['New agent applications may glean data from the Web, and XML may have a hand in that. A look at online movie ticketing uncovers some interesting issues.']

- [February 25, 2000] "XML and EAI: Here Today, But in What Way? [Is it just a check mark?]." By Colleen Frye. In *Application Development Trends* Volume 7, Number 2 (February 2000), pages 35-39. ['Today, XML is a check mark item for EAI hopefuls. It is also increasingly key to next-generation executive strategies.']

- [February 25, 2000] "J2EE: Coming Attractions." By Tony Baer. In *Application Development Trends* Volume 7, Number 2 (February 2000), page 14. "The obvious gap is Extensible Markup Language (XML) support. Should Sun extend the Java standard to handle XML? [...] Java is the verb, XML is the noun. [Bill Roth]"

- [February 23, 2000] "Building WAP Services. XML and ASP Will Set You Free." By Luca Passani. In *WebTechniques* Volume 5, Issue 3 (March 2000), pages 48-53. Cover story. "In this article, I'll show you how XML/XSL transformation can help you support new WAP features elegantly. If you're unfamiliar with WAP and WML, you'll want to read this article's sidebars to get some technical background..." See "WAP Wireless Markup Language

Specification (WML)."

- [February 15, 2000] "Blowing XML Bubbles." By Michael Floyd. In *WebTechniques* Volume 5, Issue 3 (March 2000). ['XML@Large. Michael Floyd checks in with a panel of industry experts as they discuss the future of XML.'] "I posed a series of questions to some of the chief bubble blowers in the XML community: Just exactly where is XML as a technology? What markets are forming? How is it being used? What are its limitations? When are companies throwing XML at a problem and, more importantly, when are they not? What follows is a transcript of the interviews, most of which were conducted through email. I hope the answers will help you determine what's of real value and how you can use this in planning your own business strategy. In 1996, XML was seen simply as a data representation language. Now the question arises: Has the XML bubble split into several smaller bubbles? Specifically, I asked what lines each vendor saw being drawn, and how it would characterize those markets. Responses fell into two categories: Those that saw distinct uses of XML, and those that viewed XML as a technology without any distinct communities..."

- [February 15, 2000] "Microsoft builds Visual Basic for the Web." By Wylie Wong. In *CNET News.com* (February 15, 2000). "Microsoft is sprucing up its most popular software development tool in hopes of attracting more builders of e-commerce Web sites to its Windows operating system. Microsoft today announced plans for a new version of Visual Basic, a visual-oriented tool that will allow software developers to build Web software as easily as writing a Windows-only application. Visual Basic, the industry's most popular development tool according to recent studies, revolutionized Windows development in 1991 because of its ease-of-use: Instead of writing all the software code by hand, programmers dragged and dropped pre-built software code on their computer screens. Now the giant software maker is building a version of Visual Basic for the Web. Microsoft chief executive Steve Ballmer will announce the new version of Visual Studio today during a keynote speech at the Visual Basic Insiders Technical Summit in San Francisco. The update to Visual Basic - available in about a year - will feature a built-in, drag-and-drop HTML editor that will let developers create Web sites without having to write HTML code, said Dave Mendlen, Microsoft's Visual Basic product planner. Mendlin said Visual Basic will also support object-oriented programming features, a method that breaks up software into reusable chunks, making it easier to maintain. Java, C and C++ are examples of programming languages that are object-oriented. Analysts said adding the XML and object-oriented programming features will allow Microsoft to position Visual Basic as more of a competitor to the Java programming language, which is touted as being able to run on all types of computers, regardless of the operating system. Visual Basic's support of XML (Extensible Markup Language), a Web standard for exchanging data, will allow businesses to conduct online transactions with customers and partners. Because of the XML support, Visual Basic developers can link their Web applications to other programming models, including Enterprise JavaBeans and Component Object Request Broker Architecture (CORBA), Mendlen said. The XML support will also let Visual Basic developers support

services available on other Web sites, such as Microsoft's Passport. Passport is an electronic wallet that allows users to sign in once and buy items online without having to enter credit card and personal information on numerous sites." See also the press release: "Microsoft Primes Millions of Developers for the Next-Generation Web. Steve Ballmer Outlines Microsoft Vision to Empower More Than Three Million Developers for Visual Basic With the XML-Based Tools Needed to Build Next-Generation Services."

- [February 14 2000] "Microsoft Banks on the Internet with BizTalk." By Michael Lattig. In *InfoWorld* (February 11, 2000). "Even though Microsoft officials say business-to-business benefits will be a key selling point of Windows 2000, due out next week, the company is not banking its entire business-to-business strategy on one product alone. Later this year, the company will deliver a core component of its Windows DNA 2000 architecture, the BizTalk Server, which is central to Microsoft's efforts to embrace the burgeoning adoption of XML as a key to providing the communications link between trading partners. But beyond simply embracing XML, said Charles Fitzgerald, director of business development for Microsoft's developers group, is a desire to leverage the Internet as the tie that binds trading partners... Of course, BizTalk itself has not been without its critics, as IBM and another key Microsoft rival, Sun Microsystems, have stepped up in recent months to decry the initiative as proprietary and self-serving. Microsoft, however, notes that it is simply providing a framework and a repository that can serve as the basis for XML development and in turn simpler business-to-business communication. 'We see Sun and IBM attacking BizTalk, but they never can explain why we're proprietary' Fitzgerald said." See the press release: "Microsoft Advances BizTalk Vision With Release of BizTalk Jumpstart Toolkit Version 2 Latest Release Provides Additional Functionality for Integration Of Business Processes and Compatibility with BizTalk Server 2000."

- [February 14 2000] "New Wild Life In The XML Menagerie." By Rebecca Rohan. In *Sm@rt Reseller* (January 31, 2000). "Three important additions to the eXtensible Markup Language standard roar into the new millennium. The year 1999 was a banner one for expanding XML, which has matured to the point where Web developers will be able to deploy it successfully. Back in the spring of 1998, an XML ark had just been built. That ark would carry more kinds of new media "animals" onto the Web without resorting to proprietary formats with their special plug-in requirements. XML takes over where HTML left off, but XML doesn't expand HTML with new tags. XML is a common set of tools that lets developers create any tags they wish and express them in plain text within a Web-browser-readable XML document. Documents can contain tags for marking music, chemical symbols, electronic data interchange, and anything else for which a developer writes tags to convey. In short, media should become as easy to build into Web pages as images are today..."

- [February 12, 2000] "JMS: An infrastructure for XML-based business-to-business communication. Learn how the Java Messaging Service can provide a flexible, reliable, and secure means of exchanging XML-based transactions. [JMS-XML Tutorial.]" By Gordon

Van Huizen. In *JavaWorld Magazine* Volume 5, Issue 2 (February 2000). "XML provides an attractive means of representing business-to-business transactions, but XML itself does not provide a means for the actual receipt and publishing of information. Java messaging offers a flexible, reliable, and secure communication channel within and between enterprises, providing an optimal means of exchanging XML-based transactions. This article explores the capabilities of JMS within a dynamic XML-based transactional environment, and points toward the future of this mutually beneficial pairing of standards... Virtually all XML-based B2B transactions will take place in a loosely coupled environment such as the one outlined above, where connectivity can't be guaranteed, unpredictable latency is the course of the day, transactions require security, and the frenetic pace of business demands constant change. Inserting Java messaging between business nodes in a B2B network insulates your application code from these issues. The Java Message Service (JMS) specification addresses the demands of loosely coupled distributed systems in a coherent manner. JMS offers an API and a set of semantics that prescribe the interface and general behavior of a messaging service. The underlying wire protocol is not specified by JMS, but, in practice, Java messaging is often performed over TCP/IP or HTTP. Java messaging solutions that conform to the JMS specification provide the implementation of JMS behavior over these protocols..."

- [February 12, 2000] "Build distributed applications with Java and XML. Use Xbeans to process your XML as DOM Documents. [Server-Side Java]." By Bruce Martin. In *JavaWorld* Volume 5, Issue 2 (February 2000). ['XML is a popular way to represent data in a portable, vendor-neutral, readable format. But what if you need to send XML data across a process boundary in a distributed application? Bruce Martin examines three approaches to accomplishing that in Java.'] "What good are portable, vendor-neutral data if you don't share and process them? The ability to communicate and process XML between distributed computers is desirable. An application that communicates and processes XML between computers is, in fact, a distributed application. This article explores such distributed applications written in Java. I'll focus on the communication of XML between Java code running in different virtual machines..."

- [February 12, 2000] "Surveying the Landscape of Online Industry." By Tom Spitzer. In *WebTechniques* Volume 5, Issue 2 (February 2000), pages 44-48. ['While some portals grow wide, a new variety is emerging as the obvious middle ground for B2B and industry-specific commerce. Tom explains vertical portals, and looks into the goings-on of VerticalNet and other portal providers.'] Key Enabling Technologies: There's a good deal of underlying software to drive these aggregations of services and information. At the most general level, the vortal architectures reflect current trends and buzzwords so faithfully as to offer proof that they're becoming de facto standards. XML is the lingua franca of vortal development. Java is the language of choice for vortal-based information processing, and the Java 2 Enterprise Edition (J2EE) architecture increasingly provides the infrastructure for deployment of content and services to the portal. Other key software components are profile management and personalization engines, advanced parametric search

technologies, information gathering agents, and rules engines that dynamically determine access rights, steps, and routings in workflow processes. Actually, it may be an overstatement to call XML a language, because it's really a syntax standard that supports the definition of languages. As standards for XML-based languages that address vertical and functional markets evolve, XML is becoming the basis for describing the format for product catalogs, as well as for general information delivery. For instance, construction industry vortals like Bidcom.com and Buzzsaw.com will convert catalogs of zoning and building codes into XML format to make them accessible to architects, engineers, contractors, and component suppliers. Using XML enables the vortal to leverage XML-based search mechanisms that support data extraction based on element and attribute values. These include XSL transformations and XML extensions to SQL query processors. In addition, developers are devising more creative applications for XML than simply representing data. Bidcom.com is representing business process and workflow rules in XML so it can support complex processes like obtaining the project architect's approval that a specific component conforms to specifications..." Note: see also in this issue "Beneath the Vortals. The Lowdown on XML-Based B2B Standards." By Michael Carroll.

- [February 12, 2000] "A Universal Database For Java And The Internet. IBM's DB2 Universal Database 6.1 embraces Java, XML and improves cross-platform code portability." By Alan Zeichick. In *InternetWeek* (February 01, 2000). "IBM's DB2 Universal Database version 6.1 offers interesting improvements over the previous major release of this powerful cross-platform database, version 5.2. Very interesting, that is, if your primary interests are the Internet, Java, Linux and XML. The XML Extender adds the capability to intelligently store and serve XML documents--as long as the data-type definitions of those documents are kept relatively constant as it would be in a business-to-business context. Frankly, there is a lot to like about the new DB2."

- [February 11, 2000] "The WAP Vision." By Josh Smith. From Webreview.com (February 11, 2000). ['The WAP vision promises compatibility and accessibility. But it also means that we must design our sites so that the presentation is separate from the information. In part two, Josh Smith points out how the WAP affects accessibility issues and discusses the concept of equivalent alternatives.'] "The latest offering from the W3C (World Wide Web Consortium) and the WAP (Wireless Application Protocol) Forum, comes in the form of WML --the Wireless Mark-up Language. WML is a language defined according to the specifications of the XML standard. Closely associated with this is the Composite Capability/Preference Profiles (CC/PP) exchange protocol. This allows a web server with CC/PP functionality to deliver the appropriate content for a user, depending on the sort of browser and device being used and the limitations of the interface. . . Although WML may be considered the way ahead for mobile connectivity, most web pages are written solely in HTML and are likely to stay that way for a long while yet. The advantages of conforming to the XHTML specification are myriad, but in terms of providing for those with limited functionality interfaces, the fact that XHTML 1.0 requires that your code is compliant with XML syntax means that it will be easier for these interfaces to correctly interpret it, and

easier for you to convert the code into WML or other mark-up languages at a later date. It's important to use mark-up appropriately. This means abandoning devices such as the one-pixel GIF and designing layout properly, using CSS. W3C fellow, Johan Hjelm, advises that tables should be used solely for tabulating information, not for dividing up the page..." See the W3C press release "W3C established formal liaison relationship with the WAP Forum." References: "WAP Wireless Markup Language Specification (WML)."

- [February 11, 2000] "Tutorial: Transforming XML Documents." By Doug Tidwell (Cyber Evangelist, IBM developerWorks). February, 2000. ['In part 2 of Doug Tidwell's tutorial, our resident magician shows you how to transform XML documents into Scalable Vector Graphics.'] "This tutorial will show you how to transform XML documents into various formats. Part 1 shows you how to convert XML documents into HTML. Part 2 shows you how to convert XML documents into Scalable Vector Graphics (SVG). In the future we'll expand this tutorial to include Adobe's Portable Document Format (PDF), TeX, and the emerging VoiceXML standard. Although this isn't an exhaustive list of target formats you might want to support, it's enough to show you how transformations work. Our range of sample targets include online, printed, and audio formats. Some convert one XML vocabulary to another, while the rest convert XML documents into non-markup language formats. For our transformations, we'll use six source documents: a Shakespearean sonnet, a business letter, definitions for several technical terms, some spreadsheet data, a section from a technical manual, and a short section from Henry Fielding's 18th-century British novel Tom Jones. [I just knew that degree in English Literature would come in handy someday...] This will give us a wide range of document types to transform..." [or: alt URL]

- [February 11, 2000] "IBM to Manage Handhelds, Reveal EON Kit." By Ed Scannell and Dan Neel. In *InfoWorld* (February 07, 2000), page 3. "The company will take a big step forward in bridging communication between its UNIX-based servers and handheld devices, through an XML-based application that lets IT managers configure and manage devices, including 3COM's best-selling Palm and IBM's WorkPad. Because the software is XML-based, users can also modify the application to monitor and control other features of the host system, including the processor and the performance of the disk drive..." See the IBM alphaWorks web site.

- [February 11, 2000] "WebMethods soars above $200 in first-day trading." By [Bloomberg News]. In *CNet News.com* (February 11, 2000). WebMethods, whose software makes it easier for companies and their customers to share information via the Internet, exploded out of the trading gate today, rising about 479 percent in its first day on the market. In midday trading, the stock was up $167.50 to $202.50. The company sold 4.1 million shares at $35 each in an initial public offering, raising $143.5 million. WebMethods makes software that uses a computer language called XML to help incompatible applications, from procurement to inventory management, communicate with each other. This lets Web businesses more easily swap information such as inventory data, pricing and delivery status..."

- [February 11, 2000] "IBM Pumps Up XML for B2B." By Antone Gonsalves. In *PC Week Online* Volume 17, Number 6 (February 07, 2000), pages 1, 16. "IBM, seeking to advance the promise of XML, is closing the gaps that users encounter when using the technology to link business partners over the Internet. The Armonk, N.Y., company is developing the Business-to-Business Protocol Framework, or BPF, to help developers create applications using tpaML (Trading Partner Agreements Markup Language), a set of new IBM extensions to the Extensible Markup Language. The extensions, which IBM submitted last week to the international standards body OASIS, take XML beyond a simple data transport protocol to include capabilities that enable companies to integrate business processes, workflow, security and other services into a B2B transaction, officials said. IBM plans to add tpaML support to its software by midyear, officials said. Products that would be considered include MQSeries and MQSeries Integrator -- a routing and transformation layer that sits on top of the message-oriented middleware -- and the WebSphere Commerce Suite, including the WebSphere Application Server."

- [February 11, 2000] "DAML Could Take Search to a New Level." By Jim Rapoza. In *PC Week Online* Volume 17, Number 6 (February 07, 2000), page 33. It may seem that the last thing the world needs is another Web standard, but there is always room for an intelligent addition. A new language known as DAML addresses an important, unmet need -- making Web sites understandable to programs and nontraditional browsing devices. DARPA (Defense Advanced Research Projects Agency) Agent Markup Language is a step toward what Tim Berners-Lee, the creator of the World Wide Web, calls a "semantic Web" where agents, search engines and other programs can read DAML mark up to decipher meaning -- rather than just content -- on a Web site. A semantic Web also lets agents utilize all the data on all Web pages, allowing it to gain knowledge from one site and apply it to logical mappings on other sites. Enhanced searching of this type would require a lot of groundwork: Once DAML is available, authors at individual sites would have to add DAML to their pages to describe the content. Although DAML is still in an early stage, Hendler has begun working with Berners-Lee and the World Wide Web Consortium to make sure that DAML fits with the W3C's plans for a semantic Web, which would be based primarily on RDF (Resource Description Framework), the W3C's metadata technology for adding machine-readable data to the Web. Hendler said he expects to have a working draft of DAML available by the summer. Like RDF, DAML is based on XML (Extensible Markup Language), which should help it integrate with other Web technologies. A site developer would use DAML in much the same way that HTML metatags are used, describing content on a page using markup that is generally invisible to site visitors. A critical difference is that DAML markup would be easily understandable to DAML-enabled user agents and programs, whereas most metatags are proprietary and have no contextual meaning for general search applications. [see the chart...]" See "DARPA Agent Mark Up Language (DAML)."

- [February 11, 2000] "Versant to bring object technology to XML." By John S. McCright. In *PC Week Online* Volume 17, Number 7 (February 09, 2000), page 83. "Versant Corp. is

taking the object technology it developed for databases and Java-based application servers and extending it to XML. The Fremont, Calif., company will unveil today [Wed. Feb9] its VXML Tool Kit, which will enable developers to map extensible markup language to data objects. Storing data as objects lets developers reuse and manipulate data more easily than when stored in a relational format. The tool kit, due early next quarter, builds on the work Versant started two years ago when it began building EJB (Enterprise JavaBean) containers that store object data in an application server as part of a three-tiered architecture." See the announcement: "Versant Corporation Unveils E-Business Strategy. Versant Targets High-End E-Business Developer With New Suite of Products."

- [February 10, 2000] "Weaving the Web of News. Rich Site Summary (RSS)." By Michael Classen. From WebReference. (February 2000). "Netscape invented RSS in order to advertise news channels for their Web service My Netscape Network, one of the first personalized portals. Any site could write up a summary file in RSS, submit the URL to My Netscape Network and enable users to construct their personal start page on that service from any of these registered news sources..." See other references in "Rich Site Summary (RSS)."

- [February 10, 2000] "Shrinking Code With the XML Parser. Converting a small applet from IE 4 to IE 5 made an XML believer out of one client/server programmer." By T. Mark Bosley. From DevX.com. (February 2000). "Recently, I rewrote it for XML Magazine, using some of the new capabilities in Microsoft Internet Explorer 5's XML parser such as transformNode and selectSingleNode. The process of rewriting it was downright pleasant. [...] XML, however, is going to make applications better and richer by allowing developers to add functionality easily. On many occasions I have created applications with ad hoc data structures of arrays, collections, UDTs, etc. The structures are ad hoc because the data is stored in relational tables and programs need hierarchies. As the program's functionality grows, the data structures grow more complex, or the ad hoc-ness grows, I wouldn't have attempted this with such limited time at my disposal. With XML/XSL at hand, however, I launched into it and finished with time for a long coffee break..."

- [February 10, 2000] "Proposed extensions to the SAX 2.0beta release." By Miles Sabin. (February 2000). This document describes a set of small but hopefully useful extensions to the current SAX 2.0beta. For the most part they are independent and can be evaluated individually. Below you'll find brief descriptions of each of them, links to the online javadoc, and links to download sources and pre-built binaries of sample implementations. Any comments on these proposals, or on their implementation would be welcome. Send them to xml-dev or direct to me at msabin@cromwellmedia.com." On SAX2-Beta, see David Megginson's web site.

- [February 10, 2000] "Inside SOAP." By Don Box. From XML.com. (February 04, 2000). ['A technical introduction to SOAP, an XML-over-HTTP remote procedure protocol. SOAP was

recently submitted to the IETF as an Internet Draft. Taking advantage of the pervasiveness of XML and HTTP, SOAP is a protocol for remote procedure calls over the web. Don Box, one of SOAP's creators, presents a technical introduction in his article.'] "The Simple Object Access Protocol (SOAP) is a minimal set of conventions for invoking code using XML and HTTP. DevelopMentor, Microsoft, and UserLand Software submitted SOAP to the IETF as an Internet Draft in December 1999. Since then, numerous application server/ORB vendors have announced support for the protocol as an Internet-friendly alternative to Microsoft's DCOM, Sun's RMI, and OMG's CORBA/IIOP (see the SOAP FAQ for a list of supporting vendors and products). SOAP utilizes the existing HTTP-centric fabric of the Internet to carry method requests that are encoded as XML both for ease of parsing as well as platform/language agnosticism. SOAP walks a very precarious tightrope, balancing the needs of developers using sophisticated type-centric technologies like Java and CORBA against the desires of the casual Perl or Tcl programmer writing CGI scripts. This tightrope is similar to the one walked by the W3C Schemas Working Group, who have had to design a metadata format that satisfies the needs of object and database technologies, while at the same time addressing the problem of describing document markup. While SOAP does not mandate the use of XML Schemas, it was certainly designed with them in mind. XML Schemas offer an excellent way to describe SOAP types and endpoints, as their type model matches that of SOAP very closely... SOAP is simply an application of XML (and XML Schemas) to HTTP. It invents no new technology. Rather, SOAP leverages the engineering effort already invested in HTTP and XML technologies by codifying the application of the two in the context of remote method invocation." For references, see "Simple Object Access Protocol (SOAP)."

- [February 10, 2000] "Getting Started With Microsoft's New XML Processor." By Lisa Rein. From XML.com (February 04, 2000). ['Microsoft has said they will release new versions on a frequent basis, gathering feedback from developers. This move brings them nearer to open source groups and other vendors such as IBM and Oracle, who have pursued a rapid-release, incremental strategy with their XML technology. Lisa Rein presents an introduction to MSXML2 and a quick-start guide for using it with IE5.'] "Last week, Microsoft released its first MSXML 'Parser Technology Preview Release.' The 'technology preview' release cycle is intended to be in 'Web time' in order for Microsoft to gain feedback from incremental releases... The MSXML Technology Preview SDK itself contains documentation for the updated parser -- including a list of which XSLT elements are implemented. Additionally, the SDK provides some useful tables of the GUIDs and ProdIDs for the old and new DLL files, allowing developers the flexibility to use both parsers side-by-side, if desired. The new processor's XSLT engine is backwards-compatible, so old IE5 'MSXSL' style sheets should still work fine..." See the announcement: "Microsoft Announces Support for XSLT and XPath With Web-Based Technology Preview Release. Microsoft Demonstrates Continued Support for W3C Standards, Introduces New Vehicle for Delivering Prerelease Technology to Early Adopters."

- [February 10, 2000] "Birth of a Community." By Leigh Dodds [and Peter Murray-Rust].

From XML.com (February 09, 2000). ['The XML-DEV mailing list has now finally moved to its new home with OASIS. In his XML-Deviant column, Leigh Dodds talks to Peter Murray-Rust, the founder of the list. Murray-Rust talks about the history of XML-DEV, its role in relation to the W3C, and his aspirations for its future.'] "XML-DEV was born on February 21st, 1997, when Peter Murray-Rust welcomed the list members, and thanked Henry Rzepa for taking on its setup and maintenance. Jon Bosak of Sun Microsystems expressed high hopes for the list: 'This list is certain to become a major resource as we begin to develop applications of XML.' Bosak's comment has since been vindicated. XML-DEV now has nearly 1600 subscribers and provides a content rich forum for XML developers around the world... Henry Rzepa and Peter Murray-Rust should be applauded for their hard work. XML-DEV has played a key role in shaping today's XML community. It is lively and varied, receiving contributions from a wide spectrum of industries and applications." See the press release: "OASIS to Host XML-DEV List."

- [February 10, 2000] "IBM Hopes to Standardize Contractual Exchanges." By Michael Lattig. In *InfoWorld* (January 31, 2000). "Diverging from the trend that has seen a number of companies offer industry-specific, vertical variations of XML, IBM on Monday proposed an XML-based specification that would provide a standardized form for contracts across industries. Submitted to OASIS (the Organization for the Advancement of Structured Information Standards), a vendor-neutral standards body, the proposed tpaML (trading partners agreement markup language) specification would standardize the way companies exchange contracts with their trading partners, said Marie Wieck, director of XML technology at IBM. The foundation of the standard is what IBM is calling the TPA (trading partner agreement), which is simply a document that provides information such as contract terms and conditions, participant roles, communication and security protocols, and business processes. Once those items are determined, tpaML can then be used to capture that information which is essential, and carry out the necessary communications to complete a contractual agreement..." See "Trading Partner Agreement Markup Language (tpaML)."

- [February 10, 2000] "Sun-Netscape Alliance Goes Wireless." By Stephanie Sanborn. In *InfoWorld* (January 31, 2000). "The Sun-Netscape Alliance on Monday unveiled the iPlanet Wireless Server, which gives service providers the ability to offer customers wireless e-mail, calendar, and directory services customized to specific devices. Using XML-based style sheets, the Wireless Server provides device-appropriate content, formatting the information to fit a device's particular specifications, such as screen size. A plug-in for the iPlanet Messaging Server will enable sending of Short Message Service (SMS) alerts and notes to wireless devices."

- [February 10, 2000] "Web Publishing Future Hinges on XML." By Nancy Weil. In *InfoWorld* (February 07, 2000). "XML is central to the future of Web publishing, executives from major vendors in that market said Wednesday during speeches at the Seybold Seminars Publishing 2000 conference, where companies are pledging broader product support for

XML in future releases. XML is a specification from the World Wide Web Consortium that allows Web authors to define custom tags and attributes, enabling XML documents to include meta data, or information about document content. Many vendors, Web designers, and programmers point to XML as a superior method of exchanging data over the Internet because its use does not require standardized interfaces or specific programming tools. Such an agnostic language ultimately could lead to a drop in the cost of Web publishing by 30 percent to 50 percent and a significant reduction in the time it takes to produce sites, according to Tim Gill, chairman and chief technical officer of Quark and one of the speakers during a special keynote presentation on Wednesday."

- [February 10, 2000] "RosettaNet Pieces Begin Falling Into Place." By Eugene Grygo. In *InfoWorld* (February 04, 2000). "The RosettaNet XML-based supply chain management standards for IT manufacturers passed their first hurdle last week with eConcert Readiness Day, fueling speculation that the methodology of this effort could be cloned in other vertical markets, given significant buy-in from major players. The readiness event was a test of XML in a business-to-business production environment. RosettaNet members Intel, 3Com, and CompUSA had implementations based on the PIPs (Partner Interface Processes) of the RosettaNet XML-based guidelines for dialogue between business partners." For references, see "RosettaNet."

- [February 10, 2000] "RosettaNet Marks Red-Letter Day." By Eugene Grygo. In *InfoWorld* (February 04, 2000). "Initial reports from major members of the RosettaNet consortium confirm that the group and its IT industry partners have been able to demonstrate their readiness for XML-based supply chain management. Intel, 3Com, and CompUSA lead the pack with implementations based upon the Partner Interface Processes (PIPs), the RosettaNet XML-based guidelines for dialogue between business partners. RosettaNet's membership consists of representatives from electronic component and IT manufacturers, software publishers, distributors, resellers, integrators, and end-users." For references, see "RosettaNet."

- [February 08, 2000] "It's Independence Day for XML. DataChannel, WebVision offerings seek to put an end to DTD incompatibilities." By Lee Pender. In *PC Week* Volume 17, Number 6 (February 07, 2000), page 16. "With new standards for XML cropping up with increasing frequency, two vendors have developed ways to work around potential compatibility problems. DataChannel Inc. and WebVision Inc. this week will release products that promise Extensible Markup Language independence and should eliminate potential conflicts between the various XML technologies. Currently, XML transactions rely on DTDs (document type definitions), which determine the properties of XML data. When DTDs do not match, it's not always possible to share messages. Experts have speculated that DTD fragmentation could threaten the future of the data-sharing language. DataChannel will release this week DataChannel Server 4.0, an XML server designed to pull data, convert it to XML and then push the data to WebView 2.0, DataChannel's enterprise portal. Meanwhile, WebVision, a supply chain automation software developer,

this week will release its first XML-enabled application, which will also be XML-independent..."

- [February 07, 2000] "Showtime for XML. CommerceOne and GM go to virtual market, and XML gets the stress test. [Cover Story]." By Jack Vaughan and John K. Waters. In *Application Development Trends* Volume 7, Number 1 (January 2000), pages 27-33. "The world is about to become an electronic buyers' market, and General Motors Corp., the world's largest seller of vehicles, wants to be there. In one of the most startling initiatives of the young Internet era, GM is going online with its GM TradeXchange, a Web presence that will match direct and indirect suppliers to the automotive industry... GM expects the TradeXchange site will reduce purchasing cycle times by automatically handling purchase authorization, accounting and contracting. Involved is everything from paint and bumpers for cars to paper clips and computers for knowledge workers. As is so often the case in online business-to-business undertakings these days, the eXtensible Markup Language (XML) is part of the story. XML is the proposed lingua franca for data transfer in the cyber realm. GM's and other upcoming rollouts represent the end of dress rehearsals and the beginning of what may be described as preview performances for implementations utilizing the promising XML format. XML is helping to move this type of business along, according to Mark Hoffman, CEO at CommerceOne, the Web start-up that is very much responsible for making GM's TradeXchange happen. GM, despite having access to massive IT resources, turned to CommerceOne because - no surprise here - this all has to happen in Internet time. The unique requirements of e-commerce (now including XML and online auction capabilities) mean you have to bring in people with a head start, even if it is only to be measured in months."

- [February 07, 2000] "COM and Beyond. From where I sit: XML is more important than Linux." By David Chappell. In *Application Development Trends* Volume 7, Number 1 (January 2000), page 22. "Unlike Linux, which is essentially an updated version of an old technology, XML offers something that's truly new: a widely accepted scheme for describing information. XML was first applied to describe data transferred across the Web, but its use has now expanded. For example, XML is a required technology for DBMSs. Oracle 8i, IBM's DB2 and even Microsoft's next release of SQL Server all provide support for translating data into and out of XML-defined formats. XML is also likely to be used to define services available on the Web and elsewhere, probably pushing out the traditional IDLs defined by CORBA, COM and other technologies. Even new protocols, such as Microsoft's Simple Object Access Protocol (SOAP) are defined using XML. XML is a real fire - its impact will be huge."

- [February 05, 2000] "Microsoft SQL Server XML Technology Preview." From MSDN (January 17, 2000). "Microsoft is tightly integrating XML into the SQL Server relational database management system (RDBMS) to help developers build the next generation of Web and Enterprise applications. To start off this process, Microsoft has released a technology preview that provides XML integration with and direct URL access to SQL

Server 7.0. This allows queries to be sent directly to SQL Server 7.0 via a URL with the results returned as XML formatted documents. The next version of SQL Server, code named 'Shiloh,' will be fully XML-enabled and will include a superset of the features available in the technology preview for SQL Server 7.0. SQL Server 'Shiloh' will be available in mid-2000. This Microsoft SQL Server XML Technology Preview demonstrates XML capabilities using SQL Server and Internet Information Server (IIS). It is an IIS ISAPI extension that provides HTTP access to SQL Server and XML data formatting and updating capabilities."

- [February 05, 2000] "A Class Act." By Didier Martin. From XML.com (February 04, 2000). ['Didier Martin is writing a brand new column, "Style Matters". This column will focus on XML style and transformation related topics such as XSLT and CSS. Didier's first column, "A Class Act", looks at preserving semantic information from source XML through an XSLT transform into HTML.'] "Creating HTML Documents With a Zest of XML: If you transform an XML document into HTML with XSLT on the client side -- as is possible with Microsoft's IE5 browser -- then there is no way to have access to the resultant HTML document. Instead, the 'View Source' option allows you to display the original XML source. Thus, you can still see the original semantic information from the document. However, if the transformation is carried out on the server side, what is displayed in the browser is the HTML document sent by the server. The 'source' that the user has access to in this case is the HTML document..."

- [February 05, 2000] "Object Design Becomes eXcelon Corp." By Simon St. Laurent. From XML.com (February 04, 2000). ['Object Design has renamed itself after its flagship XML product, eXcelon. Simon St.Laurent reports on the name change and eXcelon Corp.'s new range of XML products.'] "In the news this week is object-database vendor Object Design. Or rather, XML B2B vendor eXcelon Corp -- they have renamed themselves after their flagship XML product, and refocused on XML-based business-to-business solutions. Simon St.Laurent has the lowdown on the name change, and eXcelon Corp's new products."

- [February 05, 2000] "XML-Deviant: An XML Apprenticeship." By Leigh Dodds. From XML.com (February 04, 2000). "This week, XML-Deviant gets deeper into groves, takes another look at the controversy over W3C processes, and finds real progress with SAX2."

- [February 05, 2000] "Novell Set to Roll Out iChain." By Scott Berinato. In *PC Week Online* (February 03, 2000). "Novell Inc. next Tuesday will introduce its iChain e-commerce infrastructure initiative at an event in San Jose, according to sources. Though scant on details, the sources said iChain centers on Novell's NDS eDirectory as the central repository of data in an e-commerce deployment. But a significant amount of new code, mainly security and management software, will be layered on top of the directory, they said. XML will play a key role as the way data is recognized and transferred between the directory and the applications. Still, iChain will not see the advent of a bevy of new

applications. Instead, Novell, of Provo, Utah, will provide hooks into companies' business-to-business supply chain software. Some of these companies are expected to be announced as partners at Tuesday's event, the sources said. Many observers have compared iChain to Microsoft Corp.'s BizTalk. But the sources said the two were not exactly parallel. 'BizTalk seems to be much more about exchanging data between applications, through XML style sheets,' one source said. 'This is more about the underlying infrastructure'."

- [February 05, 2000] "Gearing Up for B2B E-commerce. XML-based integration servers are key to linking up with suppliers, customers." By Antone Gonsalves. In *PC Week Online* (Januuary 31, 2000). "Corporations forced to combine a mishmash of technologies for conducting e-commerce will find a more cohesive business-to-business platform emerging in the next generation of application servers. Application servers, heirs of the common Web server, are now evolving into what some are calling portal servers -- app servers that include transaction processing, message queuing and personalization. That combination, enhanced by XML (Extensible Markup Language), enables companies to integrate B2B, supply chain and other applications and reduce reliance on more costly and rigid solutions such as electronic data interchange. . . EcomXML, for instance, is entering a crowded market of so-called integration solutions, which includes companies such as Sybase Inc., expected to ship its Enterprise Information Portal this quarter; portal builder OnDisplay Inc., which earlier this month acquired application integrator Oberon Software Inc.; and SageMaker Inc., which this week plans to announce a new version of its XML-based information portal. Looming over these specialists are IBM, which is evolving its WebSphere platform toward B2B commerce, and Microsoft Corp., with its nascent BizTalk Server. The key to most of these integration efforts is XML."

- [February 04, 2000] "Executable Trading-Partner Agreements in Electronic Commerce." By Martin Sachs, Asit Dan, Thao Nguyen, Robert Kearney, Hidayatullah Shaikh, Daniel Dias (IBM T. J. Watson Research Center, Yorktown Hts, NY 10598). [January] 2000. IBM. 22 pages. Abstract: "In business to business electronic commerce, the terms and conditions describing the electronic interaction between businesses can be expressed as an electronic contract or trading-partner agreement (TPA) from which configuration information and code which embodies the terms and conditions can be generated automatically. This paper first discusses issues related to contracts and more generally to inter-business electronic interactions. Next, we describe the basic principles of electronic TPAs. The TPA expresses the rules of interaction between the parties to the TPA while maintaining complete independence of the internal processes at each party from the other parties. It represents a long-running conversation that comprises a single unit of business. Next, we describe our TPA language. We then describe tools for authoring TPAs and generating code from them. Finally, we describe an example of an application which can benefit from TPAs." See: "Trading Partner Agreement Markup Language (tpaML)."

- [February 04, 2000] "A Universal Database For Java And The Internet. BM's DB2

Universal Database 6.1 embraces Java, XML and improves cross-platform code portability." By Alan Zeichick. In *Internet Week* (February 01, 2000). "IBM's DB2 Universal Database version 6.1 offers interesting improvements over the previous major release of this powerful cross-platform database, version 5.2. Very interesting, that is, if your primary interests are the Internet, Java, Linux and XML. The XML Extender adds the capability to intelligently store and serve XML documents--as long as the data-type definitions of those documents are kept relatively constant as it would be in a business-to-business context. Frankly, there is a lot to like about the new DB2."

- [February 04, 2000] "XML software firm latest to tap IPO craze." By Wylie Wong. In *CNet News.com* (February 2, 2000). "Amid growing investor interest, e-commerce software maker WebMethods next week will become one of the first Extensible Markup Language software companies to go public. WebMethods, which builds software that allows companies to do business with each other online, hopes to raise $45 million in its public offering. From an investor's point of view, the company is doubly blessed: It markets XML-based software in the business-to-business e-commerce market, a red-hot sector that is growing exponentially as more companies tap the Web to expand their businesses."

# January 2000

- [January 31, 2000] "IBM pushes XML adoption with new spec." By Wylie Wong. In *CNet News.com* (January 31, 2000). "IBM is developing a new Extensible Markup Language-based technology that it hopes will speed adoption of the popular Web standard for exchanging information. Extensible Markup Language, or XML, is a Web standard that proponents claim allows companies to easily and cheaply conduct online transactions with their customers and partners. It also delivers sound, video and other data across the Web...Although IBM's new technology is important, analysts say IBM has just a small piece of the puzzle. The technology industry needs to develop more standards before the use of XML becomes commonplace... IBM's new specification gives companies all the pieces they need to create an electronic contract to do business with each other, said Marie Wieck, IBM's XML technology director. For example, it will allow companies to choose the type of information they want to send, whether it's a purchase order or an invoice, and how they want to send it, such as through email or a Web site." See the announcement.

- [January 28, 2000] "Pacific Edge Software Publishes XML Schema to BizTalk.org. First and Only Schema Specifically Designed for Project Management Industry." - "Pacific Edge Software, Inc, a provider of project knowledge management applications for project driven organizations, today announced that it has developed an Extensible Markup Language (XML) schema for the project management industry. This is the first and only XML schema published to BizTalk.org that is specifically designed to enable the distribution of project information across disparate information systems. The project management schema is of interest to software applications with a focus on the exchange of standard project

 management data such as cost, schedule and resource information. The recently published schema represents the complete set of project information most commonly used by project management applications and most critical to an accurate exchange of project status between two software systems." See "BizTalk Forum."

- [January 28, 2000] "Microsoft Continues to Drive Home Standards." By Brian Ploskina. In *ent - The Independent Newspaper for Windows NT Enterprise Computing [Online]* Volume 5, Number 1 (January 12, 2000), pages 14, 20. "Two Microsoft Corp.-driven Internet standards accomplished some important steps at the end of 1999. The BizTalk Framework Document Specification 1.0 was approved by the BizTalk Steering Committee and is now available at the BizTalk.org Web site. The Simple Object Access Protocol (SOAP) 1.0 was submitted to the Internet Engineering Task Force (IETF, www.ietf.org) for review. With SOAP, the IETF is considering the specification as a common framework for integrating services on the Internet. Microsoft hopes that with SOAP Web sites will become Web services that work like sophisticated applications -- accessible via a program or through a browser -- allowing new levels of Web service aggregation. . . there needs to be a standard way for services to talk to each other. SOAP enables this communication at the lowest level. It takes HTTP as a starting point and places XML inside it. XML is tuned for application-to-application communication and acts as the barter between services..." See "Simple Object Access Protocol (SOAP)."

- [January 28, 2000] "Intrusion Detection Exchange Format. Extensible Markup Language (XML) Implementation." By David A. Curry. IETF Internet Draft (draft-curry-idef-xml-00.txt). Intrusion Detection Working Group. October 14, 1999, Expires: April 13, 2000. "The purpose of the Intrusion Detection Exchange Format (IDEF) is to define data formats and exchange procedures for sharing information of interest to intrusion detection and response systems, and to the management systems which may need to interact with them. The goals and requirements of the IDEF are described in "Intrusion Detection Message Exchange Requirements." This Internet-Draft describes a proposed implementation of the data format component of the IDEF, using the Extensible Markup Language (XML) to represent the class hierarchy defined by Debar and Huang ["Intrusion Detection Exchange Format Data Model"]. The rationale for choosing XML is explained, a Document Type Definition (DTD) is developed, and examples are provided." [local archive copy]

- [January 28, 2000] "Intrusion Detection Message Exchange Format. Comparison of SMI and XML Implementations." By Glenn Mansfield (Cyber Solutions, Inc.) and David A. Curry (Internet Security Systems). IETF Internet Draft (draft-mansfield-curry-idmef-xmlsmi-00.txt). Intrusion Detection Working Group. January 20, 2000. Expires: July 19, 2000. "The purpose of the Intrusion Detection Message Exchange Format (IDMEF) is to define data formats and exchange procedures for sharing information of interest to intrusion detection and response systems, and to the management systems which may need to interact with them. The goals and requirements of the IDMEF are described in "Intrusion Detection Message Exchange Requirements." Two implementations of the IDMEF data format have been

proposed: one using the Structure of Management Information (SMI) to describe an SNMP MIB, and the other using a Document Type Definition (DTD) to describe XML documents. Both representations appear to have their good and bad traits, and deciding between them is difficult. To arrive at an informed decision, the working group tasked the authors to identify and analyze the pros and cons of both approaches, and present the results in the form of an Internet-Draft." [local archive copy]

- [January 28, 2000] "XML Gains Another Convert: Steel Industry -- Project Will Develop Industry-Specific Extensions To Boost E-Commerce." By Clinton Wilder. In *InformationWeek* Issue 770 (January 24, 2000), page 79. "Industry by industry, the Extensible Markup Language is gaining ground as the standard for E-business. Messaging technology provider WebMethods Inc. said last week it will work with integrator Computer Sciences Corp. and online marketplace operator E-Steel Corp. to develop the Steel Markup Language, or SML, a set of XML extensions for the steel industry. SML's goal is to build steel-industry-specific data formats, such as the chemical makeup, weight, and dimensions, using XML specifications... If steel companies standardize on SML, it could boost E-commerce in the industry by making it easier to import data into steel buyers' and sellers' legacy applications and inventory databases from transactions conducted in online exchanges, such as E-Steel and MetalSite. Dofasco Inc., a steelmaker in Hamilton, Ontario, will be the first E-Steel member to incorporate SML, although E-Steel expects to unveil additional adopters soon. E-Steel members include about 50 steel mills and hundreds of steel buyers, including General Electric Company." See "Steel Markup Language (SML)."

- [January 28, 2000] "Code XML data islands in Web pages. Java servlets make XML more accessible." By Carol Jones (IBM Senior Technical Staff). From IBM DeveloperWorks. Updated: January 7, 2000. "Find out some interesting ways to use XML in Java Server Pages for application integration and data exchange, as well as for publishing the data in a browser. Using the described techniques, you can place 'islands' of XML data inside your HTML pages. . . With the XML parser and XSL processor, you have all the tools you need to put XML to work in your Web applications. The data island bean provides a quick and easy way to display XML data from a Java Server Pages page. These tools give you a great way to combine data from your application logic into your Web page designs, without having to completely redesign the way everything works." See also the source code for the article.

- [January 28, 2000] "Divide and Conquer -- By Separating Processing From Switching, CPML Protocol Pushes Dual Platform Services." By Paul Korzeniowski. In *tele.com* Issue 502 (January 24, 2000). "Community Telephone Co. (Evansville, Ind.), a competitive local service provider, thinks differentiated services are the key to its future. The company is rolling out a service that will enable customers to log onto their own Web pages and tell the central office (CO) switch where to route their calls throughout the day. This complex service is being made possible by the company's switch vendor, DTI Networks Inc. (DTI,

Boca Raton, Fla.), which has developed a protocol that will ease communications between packet- and circuit-switched networks. The protocol-Call Policy Markup Language (CPML), which DTI hopes to push as a standard-is offered on two products that the company plans to announce by the end of this month. . . The emerging specification augments rather than replaces other initiatives designed to link the circuit and packet worlds, such as IP Device Control (IPDC) and Media Gateway Control Protocol (MGCP). While the others focus on how the physical connections are made between IP and public switched telephone networks (PSTNs), CPML is more concerned with how the applications using these connections exchange data. CPML could be used in place of more generic languages such as C or C++ to build enhanced services applications. Basing its work on XML allowed DTI to provide a high-level, easy-to-use interface to CO switches, which have been closed, proprietary and complex." See "Call Policy Markup Language (CPML)."

- [January 28, 2000] "Capitalizing on the merits of XML -- Integrators gradually adopt language as standards are defined." By Amber Howle. In *Computer Reseller News* Issue 878 (January 24, 2000). "XML is changing the way various platforms communicate through the Internet, but industry executives and analysts said it is too soon to tell how many integrators are capitalizing on it."

- [January 27, 2000] "Code Fast, Run Fast with XML Data Binding." By Eric Armstrong. From Sun Microsystems. ND. ['This paper presents a high-level overview of the XML Data Binding Facility for developers and IT Managers.'] XML Data Binding for the JavaTM 2 Platform aims to automatically generate substantial portions of the Java platform code that processes XML data. Data binding applications will be small and fast, suitable for server-side applications and other applications where processing efficiency is paramount. And, since the Java platform is vendor-neutral, those applications will run anywhere... With XML data binding, XML schema definitions (which dictate data structures and place restrictions on data contents) are automatically translated into Java classes. The generated classes then do the work of parsing the XML code, building the internal data structures, and validating data contents. These classes are 'lightweight' in the sense that they carry no unnecessary functionality. As a result, data binding applications will use a minimum amount of memory and run as efficiently as possible. The use of data binding, coupled with high-performance virtual machines like HotSpot, makes it possible to deliver and maintain high-performance XML-processing applications with a minimum of development effort. . . The Adelard project for XML Data Binding promises to significantly improve the performance and functionality of a wide base of server-based programs and other high-performance applications. Because it compiles a schema into Java code, it allows efficient validation of data content as well as data structure. In addition, the resulting applications are eminently portable. Just as XML 'future proofs' your data by allowing you to change database servers or generate output in different formats, the Java platform 'future proofs' your applications against hardware and operating system obsolescence." See also Marshalling Your Data and Adding Code to Generated Classes; Sun white papers.

- [January 27, 2000] "An XML Data-Binding Facility for the Java Platform." By Mark Reinhold. From Sun Microsystems. ['This paper describes the power and simplicity of XML-oriented data binding for creating and maintaining XML-enabled programs written in the Java programming language. The paper reviews the basic concepts of XML and schemas, motivates and defines XML-oriented data binding, presents an extended example, and outlines the requirements of a data-binding facility for the Java platform. Technical questions may be sent to xml-binding-comments@java.sun.com."

- [January 27, 2000] "XML Gains Common Ground. Sun, Microsoft Give Users Standard Solutions for Using the Document Spec." By Antone Gonsalves. In *PC Week [Online]* Volume 17, Number 2 (January 10, 2000), page 25. "[Sun and Microsoft] are picking up the pace in adding new XML support to their platforms as corporations build business-to-business infrastructures." Sun: Java API for XML parsing; Data Binding project, code named Project Adelard. Microsoft: XML parser for Windows; BizTalk Framework Document Specification 1.0; upgrade of the BizTalk Jumpstart Kit (compiles XML schemas into COM objects).

- [January 27, 2000] "Wireless Access Protocol set to take over. WAP addresses the shortcomings of other protocols." By Rawn Shah. In (January 2000). ['A new protocol family for mobile devices, Wireless Application Protocol (WAP), is on the horizon, and analysts are predicting it will become the standard for supporting smart cell phones, pagers, wireless personal digital assistants, and mobile computers by 2001. This month Rawn Shah investigates WAP and finds potential for greatness.'] "Wireless Application Protocol (WAP) has its own protocols that operate in a format more natural for wireless delivery. All WAP Internet connections still have to go through a gateway that connects the two protocols, but the gateway itself can add other services that optimize communications. WAP is designed to handle higher latencies, unpredictable service availability, unpredictable connection stability, and lower bandwidth, all of which present problems for wireless communication. In particular, instability, service availability, and latency problems make it hard to maintain connection-oriented services like TCP, which means most Internet applications that use TCP as their delivery mechanism won't work reliably on a wireless network. Thus the need for WAP... Wireless Application Protocol addresses many issues that surround the Internet Protocol for wireless devices, but it does have its faults. For example, even though some WAP servers can translate Web pages instantly, information can be lost or misrepresented on some devices. However, implementing WAP in a mobile device doesn't exclude the device from running other protocols, so we may see WAP running on higher-end devices (for example, laptops) that support both WAP and IP in the not-too-distant future." See "WAP Wireless Markup Language Specification (WML)."

- [January 27, 2000] "XHTML Protocol Gets Thumbs Up From Net Group." By Paul Festa. In *CNet News.com* (January 26, 2000). "The computer language commonly referred to as the lingua franca of the Web -- was officially put out to pasture today with the introduction of its

successor: XHTML. XHTML breaks new ground on the Web, giving authors a way to mix and match various XML-based languages and documents on their Web pages. It also provides a framework for nontraditional Web access devices, from toasters to television sets, for identifying themselves and their capabilities to Web servers, pulling down only information that the devices can display..."

- [January 27, 2000] "IBM Lukewarm About Microsoft's 'Proprietary' BizTalk." By Jim Kerstetter. In *PC Week [Online]* (January 26, 2000). "Don't expect IBM to become fluent in Microsoft Corp.'s BizTalk XML framework. A key IBM executive, in an interview here at the company's Partner World 2000 conference, said Big Blue will only support the BizTalk Framework -- a Microsoft-developed framework for describing how the Extensible Markup Language is to be used in business-to-business commerce -- in Windows environments. That is, they view it as any other technology Microsoft adds to its BackOffice suite. They'll support it on that platform because that's what customers need. But on other platforms? Forget it. IBM will take a pass. For its part, the role of XML integration server at IBM is filled by MQSeries middleware. IBM has no plans to split out an XML-only server. As for frameworks, IBM intends to support whatever industry groups such as the World Wide Web Consortium and OASIS develop. BizTalk [IBM says], is too entrenched in Microsoft architecture..."

- [January 27, 2000] "DTI Offers Local Providers Voice and More." By Carol Wilson. In *Inter@ctive Week [Online]* (January 27, 2000). "A little-known maker of voice switching equipment has developed a new approach to providing enhanced voice features over Internet Protocol networks that could enable competitive carriers to reap voice service revenue more rapidly. DTI Networks today, Jan. 24, is announcing a Web-based environment for developing enhanced voice services that will be far more profitable for local service providers than basic voice. The company also is introducing what it refers to as Call Policy Markup Language, an eXtensible Markup Language (XML)-based approach to setting up, controlling and taking down voice calls. DTI's entry into the market for softswitches -- open server-based systems that support voice switching features -- could have a significant impact. That market has been dominated by big players such as Lucent Technologies and newcomers such as Sonus Networks, said Sanjay Mewada, program manager of telecommunications research and consulting at The Yankee Group. DTI's CSX 2100 voice server and Telecommunications Services Portal, on which the XML-based voice feature creation environment resides, will make designing enhanced voice features as easy as Web page creation." See "Call Policy Markup Language (CPML)."

- [January 27, 2000] "IBM's XML Tool Extends the Reach of DB2. Extracting and storing data become easier with XML Extender 7.1." By Timothy Dyck. In *PC Week [Online]* Volume 17, Number 3 (January 17, 2000), pages 27, 32. "IBM's DB2 XML Extender 7.1 provides organizations using the company's DB2 database with new ways to exchange information. Businesses trying to closely connect their IT systems with those of business partners, to allow just-in-time ordering or inventory management, have the most to gain

from this product -- the Extensible Markup Language format is very well-suited to these types of tasks. The other big database vendors -- Oracle Corp., Sybase Inc. and Microsoft Corp. -- are also moving quickly to provide direct XML integration in their core database products. IBM's XML integration engine, released last month, is strong: PC Week Labs' tests show that it leverages the large XML investment IBM has made in XML parsers and tools, as well as the company's leading role in XML standards bodies. As a result, IBM leads both Sybase and Microsoft in the breadth of its database XML offering."

- [January 27, 2000] "XML Translation Wares on the Way." By Antone Gonsalves. In *PC Week [Online]* (January 24, 2000). "Software AG is rolling out this year a set of products that could, among other things, act as a translation layer between applications that use Microsoft Corp.'s BizTalk Framework and other XML schema definitions. Called XENON (XML Enabled Open Network), the framework comprises four components: X-Studio, X-Bridge, X-Machine and X-Node. X-Studio includes several tools for building documents in Extensible Markup Language, including schema editors and style sheet processors. X-Bridge is middleware that provides the translation of XML-formatted data passed between applications."

- [January 27, 2000] "XML Eases Network Monitoring." By Paula Musich. In *PC Week [Online]* Volume 17, Number 1 (January 3, 2000), pages 1, 17. "The use of XML to integrate enterprise management applications is gaining steam among established system management players and startups alike. Microsoft Corp., Cisco Systems Inc., Tivoli Systems Inc. and other developers plan to deliver in the first half of the year software that's compatible with the Distributed Management Task Force specification for encoding CIM (Common Information Model) data in Extensible Markup Language. In addition, startup Manage.Com this month expects to deliver an XML dialect that provides a common language for developing managed services across extranets. XML's use in system management and network management tools promises to more richly integrate management data from disparate sources, increase flexibility in creating links between management applications and managed objects, and enable management applications from different vendors to interoperate. Without the CIM/XML support, IT managers must rely on cumbersome and not-so-scalable enterprise management frameworks to integrate their management applications..."

- [January 27, 2000] "'TEXML: Typesetting XML with TEX." By Doug Lovell (IBM Research, New York). In *TUGboat: The Communications of the TeX Users Group* Volume 20, Number 3 (September 1999), pages 176-183. Paper presented at TUG '99 The 20th Annual Meeting of the TeX Users Group. August 15-19, 1999. University of British Columbia, Vancouver, BC Canada. ["TEX Online: Untangling the Web and TEX."] "XML, eXtensible Markup Language, is a simplified subset of SGML, which is fast becoming a standard for content management on the internet. TEXML is an XML vocabulary for TEX. A processor written in JAVA translates TEXML-conforming XML into TEX. The processor provides a document formatting solution for XML that leverages the rich knowledge and capability built

over many years in TEX. The presentation describes the TEXML document format and the processor, TEXMLatte, that produces TEX source from TEXML markup." See TeXML at the IBM Web site. Also: "SGML/XML and (La)TeX."

- [January 27, 2000] ""Special Report: XML in e-Business and Publishing. Introduction: XML and the Web in 2000. Publishing Meets E-business." By Liora Alschuler and Mark Walter. In *The Seybold Report on Internet Publishing* [ISSN: 1090-4808] Volume 4, Number 5 (January 2000), pages 1, 5. This four-part article surveys the world of "B2B and the Web" and the role of XML; the authors provide several fine software reviews/updates. "Business-to-business e-commerce promises to be one of the hottest applications of the coming year, and XML will play a key role in speeding its adoption across multiple industries. In this month's special report, we explicate the XML-powered e-business scenario, explaining what you'll have to do to make it work and describing some of the products that can help get the job done. We begin with an introduction that outlines the hurdles on the standards and application fronts. We follow with a more detailed examination of the components of XML-based e-business, including updates on pertinent standards and capsule reviews of new XML e-business products. The third section outlines new developments in XML-aware content-management systems and features coverage of several new products: Chrystal's Eclipse, Eidon's Xbase, Interleaf's BladeRunner, and XyEnterprise's Content@. Authoring was always a sticking point in implementing SGML, and the situation hasn't been much better with XML. At last, we're seeing serious progress on this front, with appealing new products from all of the leading suppliers of structured-authoring tools..." [subscription view]

- [January 27, 2000] ""Special Report: XML in e-Business and Publishing. Examining the XML-Powered E-Business Scenario." By Liora Alschuler and Mark Walter. In *The Seybold Report on Internet Publishing* [ISSN: 1090-4808] Volume 4, Number 5 (January 2000), pages 6-10. "For e-commerce, and e-business in general, to move into the mainstream, companies will have to find ways to move data among relational databases and business systems through Web publishing systems. It is a nontrivial problem. The next generation of B2B systems -- ones that work over the Internet instead of using older EDI protocols -- will use XML to decouple the database exchange from the Web presentation and to carry the data that gets passed from server to server. The data will be extracted into an XML document, which can then be transformed and routed to a publishing system or an application server, which in turn can pass it to another site or another internal application server, such as an order processing system. In this exchange, the XML markup will describe the data in sufficient detail for each server to process it according to each company's business rules..." Note the sidebar, page 7: "Registries: Who Cares? Two organizations are currently vying for bragging rights as the registry of record for XML DTDs and schemas... The question of who owns the DTDs on these sites has not yet been fully answered; even less clear is whether the original creator has any rights over derivative works. Although you may try to protect your DTD with copyright, because DTDs are written to provide interoperability with other applications, U.S. copyright law may not cover them. At the [XML '99] conference, the ability to post a schema to a public repository received a

hardy yawn from users. Without the ability to discern between wannabes and true industry standards, such all-inclusive listings will carry little weight. Some vendors, evidently oblivious to this perception, padded their marketing spiel with the claim that their schema is a 'standard' because it is listed..." [subscription view]

- [January 27, 2000] ""Special Report: XML in e-Business and Publishing. XML Vendors Target Web Content Management." By Liora Alschuler and Mark Walter. In *The Seybold Report on Internet Publishing* [ISSN: 1090-4808] Volume 4, Number 5 (January 2000), pages 11-15. "The XML-enabled e-business phenomenon is changing the perception that structured documents are only for the corporate documentation department. As corporate Web sites evolve from mere marketing outlets to bona fide conduits for business applications, the benefits of well-structured content -- and the labor involved in cleaning up poorly prepared content -- are becoming more obvious and applied to a wider range of documents than ever before. As business turns to e-business, being able to publish the right product or service information on demand for the customer changes from luxury to requirement." Chrystal's Eclipse, eidonXBase, BladeRunner, STEP editorial system, XyEnterprise Parlance Content Manager. [subscription view]

- [January 27, 2000] ""Special Report: XML in e-Business and Publishing. Authoring Tools: Document Editors Die, Get New Life." By Liora Alschuler and Mark Walter. In *The Seybold Report on Internet Publishing* [ISSN: 1090-4808] Volume 4, Number 5 (January 2000), pages 16-19. "Three out of the four contending XML document editors had booths at XML '99, and those three highlighted streamlined versions of their original tools, each now sporting an interface easily customized to fit authors and editors of a specific document type. The three editors -- Arbortext's Adept, Excosoft's Documentor and SoftQuad's XMetaL -- are designed to work with narrative text, in contrast to XML data editors used as programmers' prototyping tools and intended to edit markup-intensive, commerce-oriented data files. The release of 'lite' versions of the structured document editors responds to demands for ease of use and simplicity from an audience whose standard for usability is set by Microsoft Word and, to a lesser degree, HTML-authoring tools." [subscription view]

- [January 27, 2000] ""Stack Overflow brings XHTML to market with Mozquito Factory 1.2. Touts business forms editor as first commercial XHTML application." By Luke Cavanaugh. In *The Seybold Report on Internet Publishing* [ISSN: 1090-4808] Volume 4, Number 5 (January 2000), pages 27-28. "In 1999, the W3C released its XHTML specification to try to bridge the gap between XML and HTML and help the Web migrate toward well-formed documents. Last month Stack Overflow unveiled the first full-blown commercial application based on XHTML -- Mozquito Factory 1.2, aimed at redefining business forms on the Web. So, what does it do? Mozquito Factory adds 14 new tags on top of the W3C's recommended specifications for XHTML to form what Stack Overflow calls Forms Markup Language, or FML. The XML is used to interchange the data with a server. In a nutshell, Mozquito Factory makes it possible to create business forms that take an end Web user through a step-by-step form process without connecting back to the server each time they

submit a section of a form. It essentially makes a set of forms and all associated content (even if it is a multi-step progression, consisting of several forms, each dependent on the previous one) and makes it into one document. That one XHTML file can be transmitted back to the server, where the data can be grabbed and fed to a database or forms-processing application. As a side benefit, Mozquito also makes it possible for a designer to create and test the forms in an offline environment, without a server... " [subscription view]

- [January 27, 2000] ""STEP previews X2X link manager. Resolves SGML/XML-encoded links, topic maps into HTML." By Liora Alschuler and Mark Walter. In *The Seybold Report on Internet Publishing* [ISSN: 1090-4808] Volume 4, Number 5 (January 2000), page 29. STEP UK (www.stepuk.com), the British integration arm of XML specialist STEP, has announced the beta program for X2X, an engine that creates, manages and manipulates XML-encoded hyperlink references. X2X and its link database sit outside of the linked files and do not require source files to be modified. The engine can run as a stand-alone application, or it can be integrated into editors, batch processors and Web server components. It has a socket interface to its server API. X2X runs on a server, taking XML or SGML files with links and resolving them with its link database, which can be any ODBC/JDBC-enabled database. The delivered results can be encoded in HTML or XML. X2X also has a "Links Base View" that allows users to edit the links in the repository. The impetus for the product is that large number of links and long files require link management outside of the source and target files to avoid overloading memory and allow the linking of read-only resources. STEP UK (which is made up of former employees of the now-defunct Database Publishing Systems) originally designed X2X to help customers locate and access topic map resources. But customers liked the functionality so much that Step created a general link management engine that works for XLink and HyTime links as well as topic maps. Topic maps are a new ISO standard that defines a model and architecture for the semantic structuring of link For details, see Step's site: www.topicmaps.com." [subscription view] Also: "Topic Navigation Maps."

- [January 27, 2000] ""Percussion shows easy XML-based database connectivity with Rhythmyx." By [Staff]. In *The Seybold Report on Internet Publishing* [ISSN: 1090-4808] Volume 4, Number 5 (January 2000), page 31. Creating database-driven, dynamic Web applications doesn't have to be hard, and last month we saw a new product that takes an XML/XSL approach to making connecting a Web page to a database a very straightforward process. Percussion Software's Rhythmyx makes use of XML and XSL, but puts them where ultimately they belong: in the background, out of sight. Rhythmyx was developed by Percussion Software, a company founded in 1994 as a developer of Lotus Domino applications. Recently, Percussion has turned its attention to Web-development challenges. Percussion demonstrated a new utility, XSplit, which can be downloaded free later this month. XSplit provides an easy way for the XML novice to create a DTD and XSL stylesheet, using a subset of the Rhythmyx functionality. The process is the same as that described above: create an HTML page and label it using the <span> tag. XSplit will then create the corresponding DTD and XSL stylesheet..." [subscription view]

- [January 26, 2000] "Schema Repositories: What's at Stake?" By Liora Alschuler. From XML.com. January 26, 2000. [Edd Dumbill, Managing Editor of XML.com, frames a(n arguably specious) question: "Who is in control of XML? This is a question at the heart of this week's issue of XML.com... In our main feature we take an in-depth look at schema repositories, examining Microsoft's BizTalk.org and OASIS's XML.org. Why should we use them? What's in it for Microsoft and the sponsors of XML.org? ... Why exactly are schema repositories useful? How do Microsoft's BizTalk and OASIS's XML.org compare, and are they both missing the point? In "Schema Repositories: What's at Stake?", Liora Alschuler compares the two repositories, analyzing their still-embryonic achievements, and questioning their actual value to the user. Underlying the race to build a repository is a more fundamental competition: that to control the information model within which e-business will be conducted. Into whose hands are we placing that control?"] "...Here's a theory: It's not the siting and cataloging of schemas that is important; it's the potential relationship to the content of the schemas that is the ultimate prize. If the sole intent was to be a source of schemas and useful information about schemas, then either contending organization might have taken seriously the question of what the schema-seeker needs right now and in the near term. But to date, neither repository seems grounded in real-world, current requirements. The registry and repository sites launched by Microsoft and OASIS (BizTalk and XML.org respectively) will come into their own only when they can dish out schemas that are part of a comprehensive and cohesive framework. In fact, both sites are being developed in conjunction with such frameworks." See also above, the note referencing a 'Registries' sidebar in a recent Seybold article by Alschuler and Walter.

- [January 26, 2000] "XML: The Little Standard that Could. [Technology drivers: The InfoWorld Test Center presents its 19th annual awards for the year's most outstanding enterprise tools.]." By Michael Lattig/Maggie Biggs. In *InfoWorld* Volume 22, Issue 3 (January 17, 2000), page 54. "Odds are that when they hand out the Oscar for Best Supporting Technology at the 1999 Academy Awards, there is one star that will shine brighter than the rest: Extensible Markup Language (XML). OK, maybe there is no such award, but in reality the importance of XML has grown enough over the last year that it has become imperative for every database, application server, and enterprise application integration software vendor to include XML support in their products and strategies. Although the emergence of a standard for data interchange shouldn't come as a real surprise to anyone in this age of the Internet, it is surprising that the technology began simply as a stripped-down version of another standard, the Standard Generalized Markup Language, that has been languishing in obscurity for several years. Another interesting point is that the real progress for XML was not necessarily made in the technical development or increased availability of the technology -- in fact, popular opinion bemoans a distinct lack of tools support to date -- but in a simple understanding and appreciation of its potential..."

- [January 26, 2000] "What does the future hold for a language called Java, and what about XML?" By Bob Lewis. In *InfoWorld*. (January 21, 2000). "... Among XML's advocates are

naïfs who expect the language to be a sort of technological Esperanto, except that people will actually use XML. In other words, there are those who expect XML to be a universal language with which everyone can communicate with everyone else who speaks it. It isn't. Language requires syntax, vocabulary, and semantics. XML only defines syntax. For each context in which XML holds promise, market leaders will define specialized XML vocabularies. These efforts will be most successful in creating a replacement to both HTML and proprietary file formats, merging these two art forms into one standard way of representing documents. While XML also will succeed as the language of choice for defining meta data, the nature of its success will come as a disappointment for many electronic-business evangelists. The hard word of mapping internal data structures to each specialized industry or supply-chain XML vocabulary will be subject to the same semantic difficulties that have plagued electronic data interchange since its early EDIFACT/ANSI X.10 days. Even when two companies use identical tags to label data fields, the meaning each one assigns to a tag may be subtly different, simply because the two companies think about things differently..."

- [January 26, 2000] "Making Headlines with RSS." By Jonathan Eisenzopf. In *WebTechniques* Volume 5, Issue 2 (February 2000), pages 67-71. "Created at Netscape as a way of advertising data channels, Rich Site Summary (RSS) has become a vital syndication tool for such sites as Slashdot, The Motley Fool, Wired News, and Linux Today. Jonathan gets into the details of the standard, its use, and his XML::RSS Perl module... RSS can be used easily as a generic format for exchanging content on the Web [...] but there are other XML formats like XMLNews and ICE that are better suited for handling larger syndication systems." "RSS is an XML grammar for sharing data. That means that an RSS file contains placeholders for data, which are identified by a starting and ending tag. The first task required to RSS-enable your site is to create such a file on your Web server. This RSS file contains the title and description of items that you want to promote on your site. As you'll see, an RSS file is usually generated by a simple program but it can also be created by hand. . . Under the RSS model, each site publishes a file describing the contents of its 'channel.' Other sites can subscribe to that channel and grab its contents. The RSS file could be converted to HTML and displayed directly on a subscriber site, or it might be edited first to select only those items that are appropriate for the site's audience. The nice thing about RSS, of course, is that once you've built the system to subscribe to one RSS channel, you can subscribe to thousands of them..." [Note: The February 2000 issue of Web Techniques magazine highlights portals and syndication.] See: "RDF Rich Site Summary (RSS)" and XML-RSS-0.8 (Perl module).

- [January 26, 2000] "Text Indexing, XML Searches, and Other Database Tricks." By Ken North. In *WebTechniques* Volume 5, Issue 2 (February 2000), pages 30-33. ['Ken reaches into his bag of tricks to set us straight on physical vs. logical data models, SQL, the object-relational methods of handling text, and the latest extensions to the top databases...'] "The XML wave arrived after several database companies had already developed object-relational extensions for indexing, searching, and managing text and documents. Before

drilling down to examine XML-enabled databases, it will help to understand how SQL databases support text processing... One approach to XML document management is to store a document as a single column in a table such as a CLOB column. This enables you to do full-text indexing and content-based queries, but it isn't the best solution for performance. Why would you want to store a complete document in its native format? Some applications require an audit trail and the ability to recall the original source for a transaction. Another solution is to decompose an XML document, or map it into multiple columns. This enables you to speed up queries by using indexes on columns. You can map commonly searched elements into columns, place indexes on those columns, and perform document section searches. Informix, Oracle, IBM, and Microsoft have developed solutions for their SQL servers that treat a document as a column, or decompose it and store metadata that describes the document structure. They have also extended their servers to include XML parsers and support for XPath expressions in SQL queries. XPath expressions are similar to DOS and UNIX PATH expressions..."

- [January 26, 2000] "Launching XML Web Sites with Rocket. [Beyond HTML.]" By Michael Floyd. In *WebTechniques* Volume 5, Issue 2 (February 2000), pages 44-48. [Michael shows how you can use his template system to create an XML-driven site of your own.] See"Welcome to Rocket - A Framework for Creating XML-Based Web Sites."

- [January 26, 2000] "Beneath the Vortals. The Lowdown on XML-Based B2B Standards." By Michael Carroll. In *WebTechniques* Volume 5, Issue 2 (February 2000), pages 59-65. ['At the core of business exchange lies an agreed-upon methodology for exchanging information, and it's not EDI. Michael examines three new leaders: CBL, cXML, and BizTalk.'] "The main challenge in using XML is not with document structure and syntax, but with semantics. It's much easier to share syntax than to share semantics. Each application domain needs to have both specific document structure and agreed-upon semantics to make effective use of XML-defined documents. Various vertical industry segments have to agree on the meaning of their domain-specific XML tags. Only then can the appropriate action be taken upon parsing: translating components into internal business objects for use within the enterprise. Fortunately, several XML-based standards are emerging. They use XML to describe the types of business documents that need to be exchanged so that trading partners can exchange goods and services. The more notable of these standards are Ariba Commerce XML (cXML), Commerce One Common Business Library (CBL), and Microsoft BizTalk Framework. There are also several non-XML solutions. Open Buying on the Internet (OBI) is a fairly mature example of the non-XML sort. As we examine the three XML-based standards for B2B document exchange -- cXML, CBL, and BizTalk -- keep in mind that each is dependent on its own schema definitions. XML is a metalanguage providing the rules for defining tagged markup languages. A schema, however, is a formal specification of the grammar for one particular language. A schema is needed to validate document content, that is, to determine whether a document is a valid instance of the grammar expressed by the schema. A schema not only constrains the structure of XML document instances but also the meaning, usage, and relationship of a document's

component parts: its data types, elements, attributes, and their values..."

- [January 26, 2000] "Presenting Data with the XML DSO." [Beyond HTML.] By Michael Floyd. In *WebTechniques* Volume 5, Issue 1 (January 2000), pages 34-38. ['XML isn't as difficult to use as it sounds. Michael Floyd exploits IE5 and the DSO to quickly and cleanly manipulate XML data.'] "As part of its increasing support for XML, Microsoft introduced the XML DSO in Internet Explorer 4. The XML DSO lets you bind markup from an XML document with HTML presentation elements. The markup can come from an external data source, or it can be contained in an XML data island. The cool thing about these DSOs is that since they maintain live connections to the data source, your Web pages can update themselves as new XML data streams arrive. This month, I'll examine the XML DSO and show how you can quickly grab XML text and present it in a browser. I'll assume you know how to mark up XML documents and that you're familiar with XML data islands (see "Online" for reference materials). To use the XML DSO, your clients must be running IE4 or later. For practical applications, they should be running IE5."

- [January 26, 2000] "Commerce One adds XML tools to e-commerce line." By Geneva Sapp. In *InfoWorld*. (January 26, 2000). "E-commerce player, Commerce One, this week released a flood of products and partnerships intended to shore up its bid to capture a significant portion of the emerging business-to-business e-commerce market. The Walnut Creek, Calif., vendor announced the general availability of new products and services, including MarketSite Portal Solution 3.0, BuySite 6.0 e-procurement application, a new release of MarketSite Global Trading Portal, and a new XML transaction engine. Aside from the company's XML offerings, the CommerceOne product moves don't represent much new, but signal the follow-through on plans announced last year, according to one analyst. Commerce One's newly released XML tools are delivered with the new MarketSite Portal Solution 3.0, an e-commerce portal including a suite of integrated trading services. The object-oriented, schema-based XML transaction engine enables the rapid development and deployment of XML-based portals, trading communities, applications, and documents."

- [January 26, 2000] "NewsML Functions." By Jo Rabin. "The second draft of the NewsML functional description is now available." STA0002. 2nd IPTC Draft. 22nd January 2000. "NewsML is a media independent structural framework for news. This document defines the functionality of NewsML. Because the standards available to represent NewsML are rapidly changing it is likely that the encoding of NewsML will change over time to take advantage of those changing standards. The functionality of NewsML -- what it is able to represent and how it models the representational task in an abstract way - is also likely to change -- albeit relatively slowly. Hence this document is a bridge between the requirements of NewsML on the one hand (what it must be able to represent, and various non-optional features of how it is to do this) and the rules for how news is encoded for exchange (whether those rules are expressed by means of a DTD, a schema or whatever). NewsML's purpose is to be capable of representing news in all the various stages of its lifecycle in an electronic service environment - *e.g.*, (1) for use in and between editorial systems; (2) between wire service

providers and media clients; (3) between original publishers and aggregators/syndicators; (4) between news service providers and ultimate consumers of news. NewsML is intended for use in electronic news production, archiving and delivery and as such does not specifically set out to meet the needs of paper-based news publishing. It is intended that NewsML is able to include features required for paper-based publishing and other specific production environments by including external definitions designed for this purpose..." See "NewsML" and "News Industry Text Format (NITF)."

- [January 26, 2000] "XML Integration Features in ADO 2.5." By Kamaljit Bath and Dax Hawkins. MSDN Technical article. (January 24, 2000). ['An in-depth look at the new and updated features in Microsoft ActiveX Data Objects (ADO) version 2.5.'] "Summary: Microsoft ActiveX Data Objects (ADO) 2.0 allowed you to persist Recordset objects both to and from files in ADTG (Advanced Data Table Gram) format. Using this feature, you could save a Recordset to a disk file and later reopen it from the file. ADO 2.1 extended Recordset persistence by allowing you to persist Recordset objects in XML format, albeit with limited support for XML. ADO 2.1 did not support persistence of hierarchical Recordset objects or persistence of Recordset objects with pending changes. ADO 2.5 support for XML removes some of these restrictions. Furthermore, ADO 2.5 allows persistence of both the XML and ADTG formats to any object that supports IStream, such as the ADO Stream object, the IIS 5.0 Response object, and the XML DOM Document object. Additionally, this release provides built-in integration between ADO 2.5 and Active Server Pages (ASP) in Internet Information Server (IIS) 5.0, and between Remote Data Service (RDS) 2.5 and ASP."

- [January 26, 2000] XSLT and XPath Support Available January 26." By Charlie Heinemann. MSDN Announcement/Article (January 19, 2000). ['On January 26, [2000], Microsoft will release a technology preview version of their XML parser. This will be the first in a series of technology previews Microsoft is making available and includes updated support for the W3C's latest recommendations for XSLT and XPath.'] "Summary: The Microsoft XML Technology Preview Parser contains an XSLT/XPath implementation; improved schema support; and new interfaces for programmatically controlling transformations, queries, and validation and for caching style sheets, queries, and schemas. This release is the first of many Web releases of the XML parser to come. These Web releases will allow Microsoft to update the parser with new standards-based functionality at more regular intervals."

- [January 26, 2000] "Construct Your E-commerce Business Tier the Easy Way With XML, ASP, and Scripting MSDN." Technical Article. (January 11, 2000). "With the emergence of XML, it is now feasible to construct intelligent Internet agents that can interact reliably with multiple, diverse hosts. XML acts like the ASCII of the Internet, allowing interaction between hosts regardless of their operating systems, database managers, or data formats. Add ASP and standard data formatting options such as Cascading Style Sheets (CSS) or Extensible Stylesheet Language (XSL) to the mix and impressive network applications can be written

without even a passing nod to the Java language, C++, sockets, or other complex tools. In this article, I'll walk through a multitier application for Computer Finder, a fictitious company that offers users a Web page for specifying desired computer features, such as RAM, processor, and price. When the form is submitted, Computer Finder steps through its list of vendors, sending a query to each one based on the user-specified parameters. It then assembles the results and formats them for display to the user."

- [January 26, 2000] "Streamlining Your Web Site Using XML." By Chris Lovett. "Extreme XML" Column. (January 17, 2000). ['Author Chris Lovett describes some ways in which XML can make producing and managing Web sites much easier.'] "You can use XML to break down the tangled mess of HTML that accumulates on your Web site, transforming it into manageable chunks that different members of your team can work on in parallel to help achieve a more compelling site. Large Web sites have different teams of people working on all aspects of the site. I have seen such teams made up of the following groups: content development, which generates XML content, design, which establishes the look and feel of the site using XSL, Web publishing, which controls the actual publishing process, globalization, which endeavors to reach as many readers worldwide as possible, and business development, which focuses on business-to-business partnering opportunities."

- [January 26, 2000] "As Rivals Lurk, Microsoft Retools BizTalk Server." By Mike Ricciuti and Wylie Wong. In *CNet News.com* (January 24, 2000). "A key piece of Microsoft's e-commerce software strategy is being retooled as the giant software maker sorts out its plan for tackling that market in the face of growing competition. One vital element is Microsoft's BizTalk Server -- an Extensible Markup Language (XML)-based software application for linking business systems such as purchasing and procurement systems across the Internet. That product was slated to debut in mid-1999 in beta form, but the company missed that deadline and rescheduled beta testing until the end of last year. Microsoft, however, has only delivered pieces of the new server to beta testers and is busy building a new component of the server needed to keep the company up to speed with competitors, sources said." See "BizTalk Forum."

- [January 26, 2000] "The Table Of Contents Pattern." By Didier PH Martin and Michael Fuller. January 24, 2000. "The table of contents pattern is a whole-part structure of links pointing to resources. Each element of the whole-part structure points to a single location. Such pattern can be applied to site maps, interactive user manuals, interactive parts catalogs or to any hierarchically structured content. The relationship between an element of the whole part structure and its related resource is a one to one relationship. This document demonstrates how the XLink language can be used as a support for the table of contents pattern."

- [January 26, 2000] "XSLT Protects XML Pioneers. Schema Fragmentation is a Worry." By Timothy Dyck. In *PC Week* (January 24, 2000). "With vendors and standards groups

battling for control of XML document format standards, businesses that can't wait for a harmonious resolution can use the World Wide Web Consortium's XSLT 1.0 standard to protect their investments. The Extensible Stylesheet Language Transformations 1.0 standard, which was recommended for general use by the W3C in November, defines a standard way to convert Extensible Mark up Language documents from one format -- or schema -- into another, changing XML tag names and tree structures as needed. PC Week Labs recommends that early adopters of XML use XSLT so that they'll be able to exchange XML documents with business partners even if the XML schema they choose goes out of style. XSLT is useful primarily in server-to-server communications and has not yet been widely adapted for use in document publishing because of XSL display problems in browsers."

- [January 26, 2000] "XML strategy raises concern. Some see attempt to control language." By Antone Gonsalves. In *PC Week* (January 24, 2000). "Why have Microsoft Corp.'s efforts to get BizTalk adopted as the industry-standard XML schema aroused suspicion about the company's motives? The portion of the BizTalk Frame work that has raised eyebrows among industry experts is Microsoft's requirement that e-commerce developers wrap Biz Talk Extensible Markup Language tags around their schemata to publish them to the BizTalk repository. The tags declare that the contents of an XML/EDI (electronic data interchange) message conform to a Microsoft-defined set of permissible data elements and also specify message routing features and request-response protocols. The concern among some developers is that if Microsoft controls these tags and data element definitions, it can gain a competitive advantage by building them into products such as its Commerce Server or XML server before other firms. Despite such intense suspicion, Microsoft has yet to show proprietary intentions in its BizTalk initiative. In promoting BizTalk, it has offered its specifications to the World Wide Web Consortium; enlisted other vendors and the Data Interchange Standards Association into its BizTalk steering committee; and joined other XML-based standards initiatives, such as RosettaNet, a high-visibility vertical-market XML/EDI initiative aimed at automating the supply chain between IT vendors." [local archive copy]

- [January 24, 2000] "BizTalk: All talk? Key pieces of Microsoft's e-commerce strategy are still missing in action." By Jim Kerstetter. In *PCWeek* (January 24, 2000). "Last spring, top Microsoft Corp. executives stood before a ballroom full of reporters at San Francisco's Argent Hotel and touted a product that didn't exist and that used technology that had yet to be developed. The product was the BizTalk Server, an application that Microsoft said would make it easy for companies to integrate computer systems for business-to-business e-commerce. The technology was the BizTalk Framework, which will use XML (Extensible Markup Language) to define how computer systems at different companies talk to each other. Unfortunately for Microsoft, which has had more than its share of product delays, BizTalk development is lagging. Ten months after Microsoft Chairman Bill Gates and industry luminaries such as SAP AG Chairman Hasso Plattner and PeopleSoft Inc. CEO Dave Duffield waxed poetic about the product's imporance, BizTalk is still just talk... To say

that Microsoft has a lot riding on its BizTalk server and framework would be an understatement. An XML framework, at least as Microsoft is defining it, is literally the center of everything in business-to-business commerce. Built around a standard set of tags for defining specific types of content, the framework describes how developers should use XML to integrate with electronic data interchange systems and enterprise resource planning systems. The standard also describes how applications should work together to create just about any process companies would need to do business together online..." See "BizTalk Framework."

- [January 24, 2000] "Network Management Enters a News Millennium. Will XML Bring New Methods to the Data Madness of Integrated Systems?" By Paul Korzeniowski. In *Server/Workstation Expert* Volume 11, Number 1 (January 2000), pages 54-59. On DMTF, CIM, and XML. See "DMTF Common Information Model (CIM)." [cache]

- [January 22, 2000] "XSLT Terminology Clarification." Source: W3C Recommendation 16-November-1999. Revision: Draft 0.c. January, 2000. Maintained by Dave Pawson. "Editor comment: These definitions are meant to be explanatory rather than exact. For precision, see the W3C recommendations. They are the the clearest definitions I have... until someone mails me a better one."

- [January 21, 2000] "XSIL: Extensible Scientific Interchange Language." By Kent Blackburn, Albert Lazzarini, Tom Prince, and Roy Williams. LIGO Laboratory, California Institute of Technology. "We motivate and define the XSIL language as a flexible, hierarchical, extensible transport language for scientific data objects. The entire object may be represented in the file, or there may be metadata in the XSIL file, with a powerful, fault-tolerant linking mechanism to external data. The language is based on XML, and is designed not only for parsing and processing by machines, but also for presentation to humans through web browsers and web-database technology. There is a natural mapping between the elements of the XSIL language and the object model into which they are translated by the parser. As well as common objects (Parameter, Array, Time, Table), we have extended XSIL to include the IGWDFrame, used by gravitational-wave observatories." See "Extensible Scientific Interchange Language (XSIL)."

- [January 21, 2000] "XML APIs for Databases. Blend the power of XML and databases using custom SAX and DOM APIs. [XML/Database Tutorial.]" By Ramnivas Laddad. In *JavaWorld* Volume 5, Issue 1 (January, 2000). "Most Web applications require the presentation of database-generated information. XML, because of its ability to separate content from presentation, is fast becoming an industry standard for data exchange. Most XML tools work with either the SAX or DOM API. This article presents a way to blend the power of a database with the features of XML. It also provides a simple, pure Java implementation of XML APIs for databases that works with any JDBC data source. With this approach, XML tools can treat a database as a virtual XML document. . . Databases and

XML offer complementary functionality for storing data. Databases store data for efficient retrieval, whereas XML offers an easy information exchange that enables interoperability between applications. To take advantage of XML's features we can convert database tables into XML documents. We can then use XML tools with such documents for further processing. For example, XML documents can be presented as HTML pages with XSLT stylesheets, can be searched with XML-based query languages such as XQL, can be used as a data-exchange format, and so on. However, converting a database into an XML document is an expensive approach, one that requires not only the initial cost of conversion but also the subsequent costs of synchronizing both information sources." [The complete source code for the implementation of the SAX and DOM APIs for Databases, as well as for the examples discussed in the article, can be downloaded in zip format. The zip file also includes self-executing jar files containing compiled class files. The README.txt file provided in the top-level directory contains instructions to set up and run the examples.

- [January 20, 2000] "IBM Unveils Handheld UNIX Management Tools." By Stephen Shankland. In *CNET News.com* (January 19, 2000). "IBM has released software to let Palm Pilot handheld computers control its heavy-duty Unix servers. The computing giant has posted free software that lets people monitor their IBM RS/6000 Unix servers by plugging a Palm Pilot cradle into the server's serial port. Using the software, called Snapp, an administrator can configure a server so it can properly connect to the network. An administrator also can monitor CPU and disk performance. The software uses XML, a standard way of exchanging data, to send information back and forth between the handheld computer and the server. Using XML means that customers can modify the software to monitor and control other features of the server as well." ["This extensible, XML based PalmPilot application allows you to perform basic system administration functions on RS/6000 machines by simply tapping on your Palm Pilot. This means no keyboard, monitor, mouse, or specialized AIX skills are necessary. See the XML based PalmPilot application.]

- [January 18, 2000] ""The Workflow Management Coalition Specification." By: Workflow Management Coalition. Workflow Standard - Interoperability Wf-XML Binding. Document Number WFMC-TC-1023. Document Status: Draft 1.0 (Beta Status), 11-January-2000. Version 1.0 Beta. 40 pages. "This document represents a specification for an XML language designed to model the data transfer requirements set forth in the Workflow Management Coalition's Interoperability Abstract specification (WFMC-TC-1012). This language will be used as the basis for concrete implementations of the functionality described in the abstract in order to support the WfMC's Interface 4 (as defined by the workflow reference model). Purpose: It is the intention of this specification to describe a language that can be used to achieve the two basic types of interoperability defined in the abstract specification. Specifically, simple chained workflows and nested workflows. It will support these two types of interchange both synchronously and asynchronously. Furthermore, this specification will describe a language that is independent of any particular implementation mechanism, such as programming language, data transport mechanism, platform, hardware, etc. However, because of the fact that HTTP is considered as the most

important data transport mechanism for Wf-XML, this specification provides a description on how Wf-XML interchanges are transferred using this protocol." Send comments to the workgroup. See "XML-Based Workflow [Process Management] Standard: Wf-XML." [local archive copy]

- [January 15, 2000] "Using UML To Define XML Document Types." By Eliot Kimber (ISOGEN International). January 14, 2000. From Eliot Kimber's "Hyperlinking and HyTime Thoughts Page." The document "defines a convention for the use of UML to define XML documents. Uses stereotypes to map application-specific types to XML syntactic constructs. Shows how UML can be used in this way to map from abstract information data models to XML-specific implementation models in a natural and easy-to-understand way. Includes a sample program for generating XML DTD-syntax declaration sets from their corresponding UML model." Note: "I think the technique has some very attractive features compared with, for example, using an XML-schema type approach for development and management of DTDs (although it is not necessarily a competitor with XML Schema as XML Schemas are one possible result that can be generated from the UML models). The basic idea is quite simple: I defined a set of types that reflect the syntactic constructs of XML needed to define document types (element types, attributes, etc.) and then use those types as stereotypes in models that represent DTDs as implementation models (in the UML sense of implementation models). The implementation model is intended to be translated directly into some DTD syntax (normal declarations, XML Schema, XDR, etc.) and so is analogous to using UML to define object models that are translated directly into code. Because the models are defined in UML you get nice graphical representations for free, you can tighly bind documentation to the model, and you can formally relate the implementation model to higher-level analysis models that the DTD is an implementation of, and of course you can use existing UML-base CASE tools to do the development work. You can also use XMI as the normative representation format (which allows, for example, quite sophisticated documentation structures to be included in the model). You also get true modularization and name mapping pretty much for free using UML's package facilities." See the announcement for details. On XMI: see "Object Management Group (OMG) and XML Metadata Interchange Format (XMI)." [local archive copy]

- [January 14, 2000] "Conformance Testing." By Martha Gray, Alan Goldfine, Lynne Rosenthal, Lisa Carnahan (National Institute of Standards and Technology). January, 2000. "With any standard or specification, eventually the discussion turns to 'how will we know if an implementation or application conforms to our standard or specification?' The following discussion defines conformance and conformance testing as well as describes the components of a conformance testing program." For XML conformance issues, see "XML Conformance."

- [January 14, 2000] "MSXML Conformance." By Chris Lovett. From MSDN Web Workshop (January 10, 2000). "In November 1999, David Brownell published an article on XML.com outlining the conformance of the XML support in the Microsoft Internet Explorer 5 version of

the Microsoft XML Parser (Msxml.dll) according to the OASIS test suite. We hope that this recent article clears up the confusion about the new Msxml.dll versus the Microsoft XML Parser for Java caused by Brownell's earlier article. However, some customers using Msxml.dll are still concerned about the issues Brownell raised. This article provides more detail about these issues. The main point that needs to be made is that many test failures are a result of the fact that Msxml.dll is also supporting other standards that the OASIS test suite does not cover - such as namespaces and the W3C DOM." For XML conformance issues, see "XML Conformance."

- [January 13, 2000] "XML: Not a Silver Bullet, But a Great Pipe Wrench." By Tommie Usdin and Tony Graham (Mulberry Technologies, Inc.). In *StandardView* Volume 6, Number 3 (September 1998), pages 125-132. [ISSN: 1067-9936.] "XML (Extensible Markup Language) provides both a standards-based way to identify the information that is of importance in a particular application, and the ability to process information tagged according to highly user-specific requirements with general-purpose software, such as editing tools, composition engines, and electronic browsers. The power of XML comes in part from principles that guide the design of good XML applications: separation of format and presentation information from document markup; consistent and clear text tagging; context-dependent processing; and hierarchical structures. But these alone do not explain the real power of XML, which lies in the ability to create tag sets and markup languages customized to the needs of the particular application. A custom XML tag set allows the user to identify all of the types of information that are needed for search and retrieval, formatting, and tracking. Any type of information your end users may want to find, or not find, can be identified, and expensive distinctions among types of information that are not important to you are not made. Note, however, these phrases from the preceding paragraph: "way to identify"; "ability to create"; and "can be identified." XML provides a way to do these things, but does not do them. XML should be thought of as a useful tool, but not as a solution to any problem. . . What Can Be Done with XML That Can't Be Done without XML? Nothing. But there is a lot that can be done more easily with XML than any other way." Note that this whole issue of *StandardView* is about "E-Commerce: Activities and Issues". [subscription view]

- [January 13, 2000] "XML and Pig Poop: Agribusiness Online." By Rick Wayne. In *Software Development* (February 2000), pages 36-40. A university agricultural research project..."it's got distributed objects. It's got XML. It's got design patterns. Plus, it's got kilotons of pig poop. What more could you want? [...] "A homegrown engine for assessing the environmental and community impact of large livestock operations over the World Wide Web tests the promise of XML, open-source, and distributed objects."

- [January 13, 2000] "My Agent Will Call Your Agent. [Focus on E-Development Security. Online Services.]" By Martin L. Griss (Hewlett-Packard Laboratories, Palo Alto, California). In *Software Development* (February 2000), pages 43-46. "Intelligent components that autonomously represent user interests and communicate via XML are the answer to a

fundamental e-commerce need: flexible, extensible systems." [KQML, etc.]

- [January 13, 2000] "Meaning, Not Markup." By Simon Phipps (Chief XML and Java Evangelist, IBM). From IBM DeveloperWorks. December 1999. "This article explores the paradox that sharing a common vocabulary can actually restrict the richness and nuances of a business paradigm. The trend to share common vocabularies: One of the trends we find in the rapidly expanding world of XML is a desire to define unified vocabularies for expressing exchanged data. It seems obvious that the number of XML vocabularies used should be minimized, and indeed efforts to find agreement within various industries are laudable and to be encouraged. But these efforts may not always reduce the difficulty of exchanging information and might, paradoxically, limit the longevity of information by hiding complexities behind superficial agreements. The issue is meaning, not markup. . . shared vocabulary for users in the same domain may not be enough to allow them anything but the most rudimentary sharing of information. Different organizations usually have diverse backgrounds and varying views of the world, and their competitive advantages often result from their different paradigms. When all that is involved is basic data (to do with billing or ordering, for example), the issues may be trivial, but full-scale co-operation between companies will increasingly involve mind-to-mind connections." Note: on this general theme [but with varying approaches to the "solution"] see, see (1) Ontology.org, (2) "Ontology and Conceptual Knowledge Markup Languages," (3) "XOL - XML-Based Ontology Exchange Language," and "Business Rules Markup Language (BRML)."

- [January 13, 2000] "Process XML with JavaBeans. Interconnect JavaBeans to process XML." By Mark Johnson (JavaWorld columnist). From IBM DeveloperWorks. December 1999. "Much of the dialog about JavaBeans focuses on how to create them, not how to use them. This article, the first in a series, gives an overview of IBM's XML Bean Suite, a toolkit of JavaBeans components for processing XML."

- [January 07, 2000] "Java, XML, and Literate Programming." By Andrew Dwelly. In *Dr. Dobb's Journal* (February 2000), pages 62-68. "Marius, the system Andrew [Dwelly] presents here, implements some of Donald Knuth's ideas about literate programs, but uses Java as its programming language, with HTML as the output. In the process, Marius leverages the power of XML. Additional resources include litjava.txt (listings) and litjava.zip (source code)." [local archive copy, listings/src] For references on literate programming style, see "SGML/XML and Literate Programming."

## Earlier XML Articles

- XML Articles and Papers July-December, 1999
- XML Articles and Papers January-June, 1999
- XML Articles and Papers 1998
- XML Articles and Papers 1996 - 1997
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